

**Building 637 Area
Completion Report**

**Presidio of San Francisco,
California**

31 March 2004

Prepared for:

**The Presidio Trust
San Francisco, California**

Prepared by:

**Erler & Kalinowski, Inc.
Burlingame, California**

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2 April 2004

Ms. Jennifer Yata
Presidio Trust
P.O. Box 29052
San Francisco, California 94129-0052

Subject: Building 637 Area Completion Report, Presidio of San Francisco,
California
(EKI A000003.10)

Dear Ms. Yata:

Erler & Kalinowski, Inc. ("EKI") is pleased to present to the Presidio Trust ("Trust") the attached report, entitled *Building 637 Area Completion Report* and dated 31 March 2004 ("Completion Report"), which was prepared in accordance with our contract PT-2000-001 and purchase order number 4235.

The Completion Report was also prepared in accordance with Task 12 of Regional Water Quality Control Board, San Francisco Bay Region Order R2-2003-080 and Section 5.16 of the Trust's Consent Agreement with the Department of Toxic Substances Control, dated 30 August 1999.

If you have any questions about the attached report, please do not hesitate to call us.

Very truly yours,

ERLER & KALINOWSKI, INC.

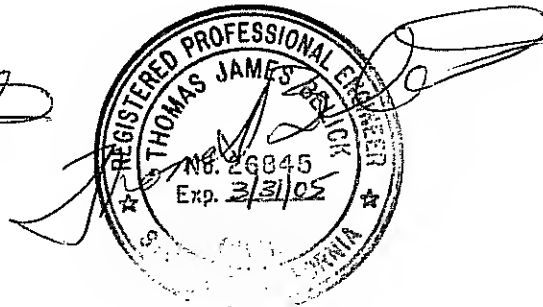
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BUILDING 637 AREA COMPLETION REPORT

Presidio of San Francisco, California

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BUILDING 637 AREA COMPLETION REPORT

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1. INTRODUCTION

1.1 PURPOSE OF REPORT

This Building 637 Area Completion Report (“Completion Report”), prepared by Erler & Kalinowski Inc. (“EKI”) on behalf of the Presidio Trust (“Trust”), is intended to meet the requirements of Task 12 of San Francisco Bay Regional Water Quality Control Board (“RWQCB”) Order No. R2-2003-0080 for the Building 637 Area and Section 5.16 of the Consent Agreement with the Department of Toxic Substances Control (“DTSC,” 1999). As shown on Figure 1, the Building 637 Area is located south of Crissy Field along the northern boundary of the Presidio of San Francisco.

Task 12 of Order No. R2-2003-0080 (the “Order”)¹ calls for submittal of a technical report that requests closure certification for underground storage tanks (“USTs”), aboveground storage tanks (“ASTs”), and fuel delivery system (“FDS”) pipelines following completion of removal and remedial actions. Based on the remedial activities conducted at the Building 637 Area and as documented by soil and groundwater sampling results, the Trust concludes that cleanup levels and remedial goals have been met such that no further corrective actions or soil or groundwater monitoring are needed, and that the Building 637 Area meets unrestricted use, including residential.

Section 5.16 of the DTSC Consent Agreement requires the Trust to submit an Implementation Report that documents the completion of remedial activities performed under the oversight of the DTSC. The Corrective Action Plan (“CAP”) and the associated work plan for the Building 637 Area (Trust, 1999a; 1999b) were also approved by the DTSC (DTSC, 1999b) because of the low levels of non-petroleum constituents associated with tank 640.2 and halogenated volatile organic chemicals (“VOCs”) in groundwater north of Building 643. This Completion Report is intended to provide the necessary documentation to obtain closure certification for these sites from the DTSC.

In view of this completion of remedial actions and the submittal of associated documentation, the Trust asks that the requirements for a Five-Year Status Report, described in Task 13 of the Order, be waived for the Building 637 Area.

1.2 GENERAL DESCRIPTION OF THE PRESIDIO

The Presidio of San Francisco (“Presidio”) is located at the northern tip of the San Francisco Peninsula. The Presidio, occupying 1,491 acres, is bounded by San Francisco Bay on the north and the Pacific Ocean on the west. The remaining boundaries are with the City of San Francisco.

¹ California Regional Water Quality Control Board, San Francisco Bay Region, Order No. R2-2003-0080, Revised Site Cleanup Requirements and Rescission of Order No. 91-082 and Order No. 96-070 for the Property Located at The Presidio of San Francisco, City and County of San Francisco.

The Department of the Defense, Department of the Army ("Army") operated the Presidio as a military post from 1848 to 1994. It served as a coastal defense fortification and a mobilization and embarkation point.

The Presidio lies within the Golden Gate National Recreation Area ("GGNRA"), created by Congress in 1972. The GGNRA legislation specified that, if the military could no longer use the Presidio, jurisdiction would be transferred to the Department of the Interior, National Park Service ("NPS"). In 1972, the Army transferred Baker Beach, part of Crissy field, and the Fort Point National Historic Site to the NPS. In 1989, the Army announced that the Presidio would close as part of the Base Realignment and Closure Act ("BRAC"). The Army transferred the remaining portion of the Presidio to the NPS in 1994.

In 1996, Congress enacted the Presidio Trust Act (Section 103 of the Omnibus Parks and Public Lands Management Act of 1996, Public Law 104-333, 110 Stat. 4097) creating the Presidio Trust and giving the Trust jurisdiction over the 1,168-acre inland area of the Presidio known as Area B. The NPS continues to manage the shoreline area known as Area A.

In 1990, in anticipation of the transfer by the Army, the NPS began planning the conversion of the Presidio from a military post to a national park. The planning effort culminated in the *General Management Plan Amendment* ("GMPA") prepared by the NPS (NPS, 1994). The GMPA guides the overall management and improvement of the Presidio, and is the governing plan for Area A. The Trust prepared the *Presidio Trust Management Plan* ("PTMP") (Presidio Trust, 2002) setting forth the Trust's land use policies and general management framework for Area B.

With certain exceptions, the Trust has assumed responsibility for environmental remediation of the Presidio. For the Building 637 Area, corrective actions were undertaken both by the Army and by the Trust. As part of the Trust's environmental remediation responsibility, the Trust retained EKI to prepare this Completion Report.

2. BACKGROUND OF BUILDING 637 AREA

2.1 BUILDING 637 AREA BACKGROUND

The Building 637 Area is located along the northern perimeter of the Presidio, south of Crissy Field. The Building 637 Area was previously a petroleum, oil, and lubricants ("POL") area used as a refueling station for the adjacent Consolidated Motor Pool facility. The Building 637 Area also included a hazardous materials storage area at Building 638. Subsurface releases from the underground piping between ASTs and fuel dispensing islands, and surface spills associated with POL activities, were believed to be the primary sources of petroleum-related contamination (Montgomery Watson, 1999a).

The Army deactivated the Motor Pool facility following the 1989 Loma Prieta earthquake. In 1993, the POL was closed by the Army, and the ASTs, vapor control tank, underground piping, fuel islands, and pump control house were removed.

During the 1990s, the Army conducted several site investigations and characterizations and removed certain facility components and contaminated soil. The Army also characterized and treated groundwater. The Army prepared a draft CAP in 1997 and a revised draft CAP in 1999 (Montgomery Watson, 1999). After the Trust assumed responsibility for the remediation of the Presidio in May 1999, the Trust prepared the final CAP for the Building 637 Area (Presidio Trust, 1999a).

The CAP was prepared to fulfill the requirements of: (1) Title 23, California Code of Regulations ("CCR"), Division 3, Chapter 16, Article 11; (2) California Health and Safety Code ("H&SC"), Chapters 6.5 and 6.8; and (3) 42 United States Code ("USC") § 9601 et seq. In addition, the CAP document was prepared to meet DTSC requirements for a Remedial Action Plan ("RAP") as well as the substantive technical requirements for remedial alternative evaluation in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP") (40 Code of Federal Regulations ["CFR"] Part 300).

The Trust prepared a *Corrective Action Plan, Building 637 Area, Work Plan*, dated August 1999 ("Work Plan;" Trust, 1999b) to guide the implementation of the CAP. As described in the Trust's *Excavation Report for the Building 637 Area at the Presidio of San Francisco*, dated 22 June 2000 ("Excavation Report;" Trust, 2000), the Trust completed the following corrective activities at the Building 637 Area in 1999 and early 2000:

- Removed remaining contaminated vadose zone soil and performed verification soil sampling and analysis;
- Treated residual hydrocarbons in the smear zone; and

- Established a monitoring well network to demonstrate that contaminated groundwater is not migrating to the restored Crissy Field wetland area.

As discussed in the Work Plan and Excavation Report, residual petroleum hydrocarbons in the smear zone were addressed by: (1) applying proprietary Oxygen Release Compound[®] (“ORC[®]”) during backfilling at several excavations to enhance in situ aerobic bioremediation, and (2) injecting ORC[®] into the smear zone at the top of the water table.

Groundwater monitoring of the new well network proceeded in accordance with the CAP. Monitoring commenced in June 2000 for certain wells and in May 2001 for other wells. The Army and Trust excavation areas are shown on Figure 2. The ORC[®] treatment area and the groundwater monitoring well network are shown on Figure 3.

Section 3 summarizes the implementation of the CAP requirements.

2.2 SITES AND AREAS INCLUDED IN THE FINAL CAP

The extent and nature of the several contamination sources and investigations in the Building 637 Area are described in a number of past Army-prepared documents. The approach of the CAP was to bring together all available information from earlier reports and investigations and, in a coordinated effort, to address all of the known contamination-related issues that remained at and near the site of former Building 637. The general area included in the CAP is shown on Figure 3.

The Building 637 Area extends from the base of the bluffs on the south to the northern edge of groundwater contamination, and from the east side of Buildings 634 and 638 to the western portion of Building 643. The sites listed in Table 1 are all near Building 637. These sites represent a comprehensive cleanup of remaining identified environmental issues over the entire Building 637 Area. The known contamination sites in the Building 637 Area, provided in Table 1, include petroleum-related sites, a former waste oil UST with an associated oil-water separator (“oil-water separator/UST 640.2”), and a small area north of Building 643 that is impacted with halogenated VOCs in groundwater.

3. SATISFACTION OF CORRECTIVE ACTION PLAN REQUIREMENTS

This section summarizes the implementation of the CAP requirements, and the data that demonstrate the Trust has met the requirements of the CAP and that no further action is required in the Building 637 Area.

3.1 SUMMARY OF CORRECTIVE ACTION PLAN REQUIREMENTS

The remedial alternative for the Building 637 Area selected by the CAP consisted of the following main components:

- Excavation and off-site disposal or treatment of soil within the unsaturated zone (i.e., ground surface to 4 feet below ground surface ("bgs")) that contained petroleum hydrocarbons greater than applicable soil cleanup levels, in order to accomplish shallow soil source removal;
- Enhanced in-situ bioremediation, using ORC[®], of soil within the smear zone above the water table that contained petroleum hydrocarbons, in order to accomplish further source removal; and
- Implementation of a groundwater monitoring program: (1) to monitor groundwater flow directions in the A1 and A2 water-bearing zones, (2) to confirm that groundwater containing petroleum hydrocarbons above the saltwater protection zone cleanup levels is not migrating into the Crissy Field wetlands after the Crissy Field restoration, (3) to evaluate the effects of enhanced in-situ bioremediation, (4) to confirm that petroleum hydrocarbon concentrations in the Building 637 Area continue to be stable or decreasing, and (5) to confirm that vinyl chloride concentrations in the A2 Zone have declined below the promulgated Maximum Contaminant Levels ("MCLs").

3.2 APPLICABLE CLEANUP LEVELS

Both petroleum and non-petroleum compounds have been detected in soil and groundwater in the Building 637 Area. Cleanup levels were adopted in the CAP for each chemical of concern. Cleanup levels for petroleum hydrocarbons and petroleum hydrocarbon-related compounds are listed in Table 2A. Cleanup levels for non-petroleum compounds are listed in Table 2B.

The basis of these cleanup levels is described in the CAP and summarized in the notes to Tables 2A and 2B. The soil cleanup levels are the most stringent of the recreational, terrestrial, and water quality-based cleanup levels. The groundwater cleanup levels for petroleum hydrocarbons and related constituents within the Building 637 Area are for

protection of water quality in the Crissy Field groundwater area and for protection of saltwater aquatic life for sampling locations that are less than 150 feet from the wetlands.

As discussed in the CAP, MCLs were identified as the relevant and appropriate cleanup levels for halogenated VOCs in the Building 637 Area.

3.3 IMPLEMENTATION OF CAP REQUIREMENTS

As described in the Excavation Report, remedial activities were conducted in accordance with the CAP and Work Plan approved by the RWQCB in a letter, dated 27 August 1999, and by the DTSC in a letter, dated 1 September 1999. Section 3.3.1 describes the results of the soil corrective actions. Section 3.3.2 describes the results of the groundwater monitoring program. Exceptions to the CAP and Work Plan requirements are discussed in Section 3.3.3.

3.3.1 Soil Corrective Actions

From 8 September through 7 October 1999, soil impacted with petroleum hydrocarbons and related constituents was excavated from six locations at the Building 637 Area. These excavation areas are shown on Figure 2. Soil in one of the six excavated areas also contained non-petroleum hydrocarbon chemicals of concern ("COCs"). Excavated soil was transported off-site for disposal at Waste Management's permitted Class II Altamont facility in Livermore, California. Based on Waste Management's records, approximately 1,650 tons of soil and asphalt were removed from the Building 637 Area and disposed of during these remedial activities. At two locations, where excavations were completed to a depth of 6 feet below ground surface, backfill activities included placement of ORC[®] to accomplish further source removal in the smear zone.

Verification soil sampling was conducted to confirm that soil remaining in place did not contain petroleum hydrocarbons or related constituents, or non-petroleum hydrocarbon COCs, above the established Building 637 Area cleanup levels. All final verification sampling results show residual chemical concentrations in soil are below the applicable cleanup levels. Table 3 summarizes the remedial actions performed at each of the tank sites in the Building 637 Area.

Figure 2 shows all of the Army and Trust soil sampling locations that are representative of soil remaining in the unsaturated zone at the Building 637 Area after remediation (i.e., samples that were collected from soil that was excavated and disposed of are not shown on Figure 2). Soil analytical results from investigations and remedial actions performed by the Army and the Trust at the Building 637 Area are included in tables in Appendix A. Selected representative analytical results are posted on figures included in Appendix A. The tables and figures in Appendix A were reproduced from prior reports (Montgomery Watson, 1999a; Trust, 1999a and 2000). The Montgomery Watson table (Table 2-2) and Trust Figure 2-1 in Appendix A include analytical results for some samples that were subsequently excavated in the corrective actions performed by the Trust in 1999.

As discussed in the Excavation Report, the soil remedial activities performed in the Building 637 Area support the following conclusions:

- Post-excavation verification sampling was sufficient to assess the effectiveness of soil remedial activities performed;
- Chemical concentrations detected in verification soil samples are below the soil cleanup levels established in the CAP and Work Plan; and
- On the basis of the remedial activities and verification sampling results, no further soil removal activity at the Site is required to satisfy the objectives of the CAP and Work Plan.

3.3.2 Groundwater Corrective Actions and Monitoring Results

Groundwater corrective actions at the Building 637 Area included backfilling the smear zone of selected excavations with ORC[®]-containing backfill material and injecting ORC[®] into the smear zone and shallow groundwater to achieve additional source removal. The ORC[®] backfill areas and the approximate locations of the injection points are shown on Figure 3.

Groundwater monitoring was also performed (1) to monitor groundwater flow directions in the A1 and A2 Zones, (2) to confirm that groundwater containing petroleum hydrocarbons above the saltwater protection zone cleanup levels is not migrating into the restored Crissy Field wetlands, (3) to evaluate the effects of ORC[®]-enhanced in-situ bioremediation, (4) to confirm that petroleum hydrocarbon concentrations in the Building 637 Area remain stable or decrease, and (5) to confirm that vinyl chloride concentrations in the A2 Zone have declined below MCLs.

As described in the Excavation Report, on 20 and 21 October 1999, the Trust constructed a network of seven groundwater monitoring wells to allow monitoring of groundwater flow directions in the A1 and A2 Zones and to confirm that groundwater containing Building 637 Area COCs above saltwater protection zone cleanup levels is not migrating into the Crissy Field wetlands. The monitoring network also enabled the evaluation of ORC[®]-enhanced in-situ bioremediation. The seven new wells were developed on 25 October 1999.

On 9 February 2000, the Trust conducted baseline groundwater sampling of three monitoring wells to determine current groundwater conditions. Between 28 February and 2 March 2000, ORC[®] was injected into the subsurface at the Building 637 Area to enhance in-situ bioremediation in the Building 637 Area. Approximately 2,700 pounds of ORC[®] was injected between three to seven feet below ground surface through 96 injection points (see Figure 3).

Groundwater monitoring of the new well network commenced in June 2000 for several of the wells and in May 2001 for the remaining wells. Certain existing wells have been monitored by the Army, and then by the Trust, since 1994. Table 4 summarizes the monitoring requirements and the analytical results for each of the Building 637 Area monitoring wells. All of the groundwater monitoring results for the Building 637 Area through the fourth quarter of 2003 are included in Appendix B, most of which is taken from Treadwell & Rollo's most recent groundwater monitoring report, entitled *Draft Semi-Annual Groundwater Monitoring Report, First and Second Quarters 2003, Presidio-Wide Quarterly Groundwater Monitoring Program, Presidio of San Francisco, California* and dated October 2003 (Treadwell & Rollo, 2003). The most recent data (i.e., from August 2003) were obtained from the Trust's database and will be published in Treadwell & Rollo's semi-annual groundwater monitoring report for the third and fourth quarters of 2003. No groundwater samples were collected from the Building 637 Area in the fourth quarter 2003.

The following sections summarize the findings of the groundwater corrective action and monitoring program.

3.3.2.1 *Groundwater Flow Directions in the A1 and A2 Zones*

Groundwater levels measured after the construction of the Crissy Fields wetlands indicate that groundwater flow directions in the A1 and A2 Zones have generally remained consistent over this time period (Treadwell & Rollo, 2003). Figures A-5-2 through A-5-5 included in Appendix B depict the measured groundwater elevations and potentiometric surfaces for the A1 and A2 Zones for the first two quarters in 2003.

In the A1 Zone, the groundwater flow direction in the Building 637 source area (i.e., south of Mason Street) is generally to the north. North of Mason Street, the groundwater flow direction shifts to the northeast, toward the wetlands. Prior to the restoration of the Crissy Field wetlands, the groundwater flow direction in the A1 Zone was to the north/northwest (Trust, 1999a). Thus, the early detection well (637-34) and the sentry monitoring wells (637-35 through 637-37) appear to be located appropriately to detect petroleum hydrocarbons and related constituents migrating in groundwater toward the wetlands (see Figure 3).

In the A2 Zone, the groundwater flow direction is to the northwest, which is consistent with observations prior to the restoration of the wetlands.

The CAP requirements to monitor the groundwater flow directions in the A1 and A2 Zones have been met and no additional water level monitoring is necessary in the Building 637 Area.

3.3.2.2 *Effects of Enhanced in situ Bioremediation*

At the time the CAP was written, the available groundwater monitoring data suggested that the petroleum hydrocarbon plume in the Building 637 Area was stable (Montgomery

Watson, 1999b; 1999c). The Trust agreed to use in situ bioremediation in an effort to achieve additional source removal. The CAP and Work Plan required the Trust to review the groundwater monitoring data to evaluate if the ORC[®] applications had any impact on dissolved oxygen and petroleum hydrocarbon concentrations at downgradient wells 637-26, 637-38, and 637-39 (Trust, 1999a). The dissolved oxygen and petroleum hydrocarbon groundwater monitoring data are included in Tables A-5-3 and A-5-4, respectively, in Appendix B of this report.

In February 2000, before the application of ORC[®], dissolved oxygen concentrations in wells 637-26 and 637-38 were 0.54 mg/L and 0.70 mg/L, respectively. Dissolved oxygen concentrations in wells 637-26 and 637-38 were present at their highest measured concentrations (1.71 mg/L and 2.39 mg/L, respectively) in the first sampling round (June 2000) after the backfilling and injection of ORC[®], approximately 9 months after excavation area C was backfilled with ORC[®] and 5 months after the injection of ORC[®]. Dissolved oxygen concentrations remained at or above 1 mg/L at well 637-38 through December 2001, but declined to 0.28 mg/L at well 637-26 by May 2001.² As shown on Figure 3, wells 637-26 and 637-38 are located immediately north of the ORC[®] injection area.

Well 637-39R, located north of excavation area F, was not sampled until August 2001, because the original well, well 637-39, installed at this location was damaged during the construction of the new bike path along Mason Street and was not replaced until 2001. Dissolved oxygen concentrations in this well were low at the time of the original 2001 sampling, probably because the ORC[®] had been placed in the upgradient excavation nearly two years before the well was monitored.

Total petroleum hydrocarbons quantified as gasoline ("TPH-g") concentrations in groundwater samples from well 637-26 before the application of ORC[®] were much higher, on average, than after the ORC[®] application (1,400 ug/L versus 215 ug/L). Benzene, toluene, ethylbenzene, and xylenes ("BTEX") concentrations have remained stable in this well (i.e., less than 6 ug/L) both before and after ORC[®] application. Methyl-tert-butyl ether ("MTBE") concentrations have also remained stable (i.e., less than 3 ug/L) since monitoring for MTBE began in 2001.

Pre-ORC[®] monitoring data are not available for wells 637-38 and 637-39R because these wells were installed as part of the later CAP implementation. TPH-g concentrations have been stable in samples from well 637-38 and not detected in well 637-39R. BTEX and MTBE have generally not been detected in groundwater samples from wells 637-38 and 637-39R.

Overall, these data indicate that ORC[®] was effective at increasing the dissolved oxygen levels in groundwater for a period exceeding one year, promoting aerobic biodegradation.

² Measured dissolved oxygen levels in the Building 637 Area wells may have been affected by the use of different sampling methodologies over the course of the monitoring program. Thus, the measured dissolved oxygen levels may be an artifact of the sampling and may not necessarily represent the actual dissolved oxygen concentrations in groundwater.

The remedial actions at the Building 637 Area, both the excavations and ORC[®] applications have resulted in significant reductions in petroleum hydrocarbon concentrations immediately downgradient (north) of the source area. The CAP requirement to assess the effects of in situ bioremediation in the vicinity of the ORC[®] application have been met and no additional assessment of bioremediation is necessary in the Building 637 Area.

3.3.2.3 Assessment of Petroleum Hydrocarbon Migration to the Crissy Field Wetlands

Groundwater samples from the early detection well (637-34) and sentry monitoring wells (637-35 through 637-37) have been analyzed for TPH-g and BTEX. As indicated in Table 4, TPH-g and BTEX have never been detected in groundwater samples from wells 637-34, 637-36, and 637-37 in the three years these wells have been monitored.

Low levels of xylenes (0.63 ug/L) were detected in one groundwater sampling round from well 637-35, the northernmost sentry well; xylenes have not been detected in the five subsequent monitoring rounds. TPH-g, benzene, toluene, and ethylbenzene have not been detected in any of the groundwater samples from well 637-35.

These results indicate that petroleum hydrocarbons and related constituents from the Building 637 Area are not migrating at levels of concern to the Crissy Field wetlands. Therefore, the CAP requirements have been met and no additional groundwater monitoring is necessary in the Building 637 Area.

3.3.2.4 Petroleum Hydrocarbon Concentration Trends in Groundwater

As presented in Table 4, concentrations of petroleum hydrocarbons and related constituents (BTEX and MTBE) in groundwater samples from the Building 637 Area have been consistently less than the applicable cleanup levels. Review of the data presented in Appendix B indicates that BTEX and MTBE concentrations have been less than the MCLs in at least the last four consecutive sampling rounds at all of the monitoring locations. Concentrations of petroleum hydrocarbons and related constituents are stable or have decreased since the corrective actions have been implemented in the Building 637 Area.

3.3.2.5 Confirmation of Halogenated VOC Concentrations in the A2 Zone

As shown in Table 4, the CAP required groundwater samples from A2 Zone well 637-40, located north of Building 643, to be analyzed for halogenated VOCs until MCLs were achieved. Such monitoring was to be performed annually until the performance goal was met; that is, until two consecutive monitoring events indicated that concentrations were less than or equal to MCLs.

Vinyl chloride is the only halogenated VOC that has been detected in any groundwater samples from well 637-40 at a level that exceeds its MCL of 0.5 ug/L. Vinyl chloride has

not been detected (reporting limit of 0.5 ug/L) in the last two sampling rounds from this well (March 2002 and March 2003).

A2 Zone well 637-33 was also sampled for halogenated VOCs in the past, in 1998 and 1999. Halogenated VOCs were not detected in the eight sampling rounds from this well.

These data are tabulated in Table A-5-5 in Appendix B. Thus, the groundwater data demonstrate that halogenated VOCs are not present above MCLs in the A2 Zone and no additional monitoring is necessary to achieve the CAP requirement for halogenated VOC monitoring.

3.3.3 Exceptions to the CAP Requirements

The only exception to the requirements described in the CAP is related to groundwater monitoring frequency and duration. The CAP required two years of quarterly monitoring for well 637-39R (i.e., 8 rounds of sampling). As discussed in Section 3.3.2.2, the original well constructed at this location was damaged and could not be replaced and sampling initiated until August 2001. As of the third quarter 2003, the Trust completed seven rounds of monitoring for well 637-39R. Petroleum hydrocarbons and BTEX have not been detected in any of the groundwater samples from well 637-39R. Therefore, the Trust concludes it is appropriate to terminate groundwater monitoring of well 637-39R.

3.4 CASE CLOSURE SUMMARY AND PROTECTIVENESS STATEMENT

As described in Task 12 of the Order, requests for closure certification are to include a case closure summary with confirmation sampling results to demonstrate compliance with the Order. For groundwater-impacted sites, the case closure summary must demonstrate compliance with the preferred alternative in the CAP.

Table 3 provides a summary for each of the ASTs, USTs, and FDS lines in the Building 637 Area. Table 4 summarizes the groundwater monitoring program requirements and results. Together, these tables demonstrate that the requirements of the CAP have been met for the Building 637 Area, including all of the sites compiled in Table 1.

As shown in Tables 3 and 4, the available data demonstrate that the implemented remedies at the Building 637 Area achieved the level of cleanup and protection specified in the CAP for all exposure pathways, including recreational and terrestrial receptors within the Building 637 Area and aquatic receptors at the Crissy Field wetlands. As such, no further response action is needed to protect public health or the environment.

4. ASSESSMENT FOR UNRESTRICTED USE

The available soil data that are representative of concentrations remaining in residual soil at the Building 637 Area after implementation of the CAP were compared with the residential cleanup levels in the Order and in the Presidio-wide Cleanup Level document for non-petroleum constituents (EKI, 2002). As indicated in Table 3, chemical concentrations at all sampling locations are less than the residential cleanup levels.

For all groundwater monitoring wells, except well 637-40, halogenated VOC, BTEX, and MTBE concentrations measured in samples for at least the last four consecutive groundwater monitoring events have been less than MCLs. As discussed in Section 3.3.2.5, for well 637-40, MCLs have been achieved for the last two groundwater monitoring events. Petroleum hydrocarbon concentrations for at least the last four consecutive groundwater monitoring events have been less than the drinking water cleanup levels for these parameters listed in Table 7-6 of the Presidio-wide Cleanup Level Document (EKI, 2002).

Based on the corrective actions undertaken and soil and groundwater sampling results obtained, all portions of the Building 637 Area were found to meet unrestricted use standards, including residential.

5. REQUEST FOR CLOSURE CERTIFICATION

5.1 CLOSURE CERTIFICATION

Table 5 lists the individual sites within the Building 637 Area that the Trust is requesting the RWQCB and DTSC to certify. This Completion Report formally requests closure certification for the Building 637 Area, consistent with Task 12 of the Order. As shown in Section 4, the available data meet residential human health cleanup levels. Therefore, this document also requests that the RWQCB and DTSC's certification for the Building 637 Area specifically allow unrestricted land use.

The CAP and Work Plan were also approved by the DTSC in view of the low levels of non-petroleum constituents associated with tank 640.2 and halogenated VOCs in groundwater north of Building 643. Section 5.16 of the Consent Agreement between the Trust, NPS, and DTSC, dated 30 August 1999, identifies the requirements for regulatory certification that a site is adequately remediated (DTSC, 1999). This Completion Report is intended to provide the necessary documentation for such regulatory certification. Therefore, as indicated in Table 5, the Trust is requesting that DTSC provide closure certification for tank 640.2 and groundwater north of Building 643.

For the convenience of the RWQCB and DTSC, Table 5 has a signature line for each agency, after completion of its review of this document, to formally confirm these certifications. The Trust requests that the RWQCB and DTSC review, and, if satisfactory, sign and return a copy of Table 5 to the Trust to confirm that the requested certifications listed above have been accepted by the appropriate regulatory agencies.

After receipt of the closure certifications, the Trust will properly decommission all remaining groundwater monitoring wells in the Building 637 Area.

5.2 WAIVER OF FIVE-YEAR STATUS REPORT

In view of the completion of remedial actions, the results of the groundwater monitoring data, and the submittal of supporting documentation, the Trust asks that the requirements for a Five-Year Status Report, described in Task 13 of the Order, be waived for the Building 637 Area.

6. REFERENCES

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TABLE I
KNOWN CONTAMINATION SITES ADDRESSED IN
BUILDING 637 AREA CLOSURE CERTIFICATION REPORT

Presidio of San Francisco, California

<i>Tank Sites and Associated Information</i>		
<u>Tank Site Number</u>	<u>Tank Type</u>	<u>Tank Contents</u>
Tank 637.1	AST	Gasoline
Tank 637.2	AST	Gasoline
Tank 637.3	AST	Gasoline
Tank 637.4	AST	Diesel
Tank 637.5	AST	Diesel
Tank 637.6	AST	Diesel
Tank 637.VR	UST	Gasoline
Tank 638.OW	UST	Oil/Water Mix
Tank 640.1	AST	Hydraulic Oil
Tank 640.2 (a)	UST	Waste Oil
Tank 640.3	UST	Diesel
Tank 640.4	UST	Diesel
Tank 640.5	UST	Diesel
Tank 642.1	AST	Diesel
Tank 642.2	UST	Diesel
<i>Other Sites</i>		
Building 638		
FDS Segments in Building 637 Area		
<i>Groundwater Contamination At or Associated with Buildings</i>		
Building 634		
Building 637		
Building 638		
Building 639		
Building 640		
Building 641		
Building 642		
Building 643		

Notes:

(a) Tank 640.2 includes the associated oil-water separator.

Abbreviations:

AST = Aboveground Storage Tank

UST = Underground Storage Tank

FDS = Fuel Distribution System

TABLE 2A
CLEANUP LEVELS FOR PETROLEUM HYDROCARBONS AND RELATED COMPOUNDS
FROM BUILDING 637 AREA CORRECTIVE ACTION PLAN
 Presidio of San Francisco, California

Chemical of Concern	Potential Soil Cleanup Levels (mg/Kg) (a)			Applicable Soil Cleanup Level (e) (mg/Kg)
	Recreational (b)	Terrestrial Receptors (c)	Soil Less Than 5 feet Above Groundwater (d)	
Gasoline	2,400	610	1,690	610
Diesel	3,200	700	1,950	700
Fuel Oil	4,500	980	2,730	980
Benzene	1.5	40	1	1
Toluene	1,200	270	14	14
Ethylbenzene	1,900	125	19	19
Xylenes (Total)	2,500	55	4,340	55
Total Carcinogenic PAHs	13	NV	253	13
<hr/>				
	Groundwater Cleanup Levels (µg/L)			
	> 150 feet from wetlands (f)		≤ 150 feet from wetlands (g)	
Gasoline		13,000	1,200	
Diesel		15,000	NV	
Fuel Oil		21,000	2,200	
Benzene		650	510	
Toluene		2,100	1,000	
Ethylbenzene		1,000	43	
Xylenes (Total)		232,000	130	

Notes:

- (a) Potential soil cleanup levels were obtained from the Site Cleanup Requirements identified in RWQCB Order 96-070, 15 May 1996. The most stringent value applies to the unsaturated zone soil (i.e., less than 4 feet bgs) in the Building 637 Area.
- (b) Recreational cleanup levels (Order 96-070, Table 1) are applicable for chemicals present at depths of 0 to 2 feet bgs. For purposes of the Building 637 Area CAP, recreational cleanup levels are applicable to the entire unsaturated zone.
- (c) Cleanup levels for terrestrial receptors (Order 96-070, Table 2) are applicable for chemicals present at depths of 0 to 3 feet bgs. For purposes of the Building 637 Area CAP, terrestrial receptor cleanup levels are applicable to the entire unsaturated zone.
- (d) The Building 637 Area is located within the Crissy Field Groundwater Area. The depth to groundwater in the Building 637 Area can be as shallow as 3 feet bgs. Therefore, cleanup levels for soil less than 5 feet above groundwater at Crissy Field (Order 96-070, Table 5) are applicable to the unsaturated zone at the Building 637 Area.
- (e) The applicable soil cleanup level is the most stringent (i.e., lowest) of the values listed.
- (f) The cleanup levels for groundwater at Crissy Field that is greater than 150 feet from the saltwater protection zone (i.e., more than 150 feet from the wetlands) are obtained from the FPALDR (Montgomery Watson, 1995).
- (g) The cleanup levels for groundwater within the saltwater protection zone (i.e., less than 150 feet from the wetlands) are obtained from Table 16 of the *Report of Petroleum and Hydrocarbon Bioassay and Point-of-Compliance Determinations, Saltwater Ecological Protection Zone, Presidio of San Francisco* (IT Corporation, 1997).

TABLE 2A
CLEANUP LEVELS FOR PETROLEUM HYDROCARBONS AND RELATED COMPOUNDS
FROM BUILDING 637 AREA CORRECTIVE ACTION PLAN

Presidio of San Francisco, California

Abbreviations:

RWQCB = California Regional Water Quality Control Board, San Francisco Bay Region

feet bgs = feet below ground surface

FPALDR = Fuel Product Action Level Development Report

NV = no value established

PAHs = polynuclear aromatic hydrocarbons

TABLE 2B
CLEANUP LEVELS FOR NON-PETROLEUM RELATED COMPOUNDS
FROM BUILDING 637 AREA CORRECTIVE ACTION PLAN
 Presidio of San Francisco, California

Matrix	Chemical of Concern	Applicable Cleanup Level
Soil	PCBs (total)	1 mg/Kg (a)
	DDT	0.496 mg/Kg (b)
	DDD	0.504 mg/Kg (b)
	DDE	0.514 mg/Kg (b)
	Lead	477 mg/Kg (a)
Groundwater	Trichloroethene (TCE)	5 µg/L (c)
	1,2-dichloroethane (1,2-DCA)	0.5 µg/L (d)
	cis-1,2-dichloroethene (cis-1,2-DCE)	6 µg/L (d)
	Vinyl chloride	0.5 µg/L (d)
	PCBs (total)	0.5 µg/L (c)

Notes:

(a) Cleanup level in soil was obtained from *Final Remedial Action Plan, Crissy Field Area, Presidio of San Francisco* - Table 2-4 (Army, 1998).

(b) Cleanup level in soil was obtained from *Final Remedial Action Plan, Crissy Field Area, Presidio of San Francisco* - Section 1.5 and Appendix A Table 3.1 (Army, 1998).

(c) Cleanup level in groundwater is the Federal Maximum Contaminant Level (U.S. EPA, January 1999).

(d) Cleanup level in groundwater is the California Maximum Contaminant Level (U.S. EPA, January 1999).

Abbreviations

PCBs (total) = total polychlorinated biphenyls

DDT = 1,1,1-trichloro-2,2-di(4-chlorophenyl)ethane

DDD = 1,1-dichloro-2,2-di(4-chlorophenyl)ethane

DDE = 1,1-dichloro-2,2-di(4-chlorophenyl)ethene

TABLE 3
BUILDING 637 AREA CASE CLOSURE SUMMARY
 Presidio of San Francisco, California

Site Number	Tank Type and Contents	Tank Volume (in gallons)	Tank Status	Tank Address	Tank Location (latitude, longitude)	Description of Remedial Investigations and Remedial Actions (a)	Effectiveness of Remedy	Proposed Future Work	Reference
637.1	AST Gasoline	20,000	Removed 1993	637 Mason Street	37° 48' 09" N 122° 27' 43" W	Tank was part of POL area. Subsurface releases from underground piping between tanks and fuel islands and surface spills are the primary potential petroleum-related contaminant sources (4). POL operations ceased in 1989. The Army performed investigations from 1989 to 1992, which found soil and groundwater contaminated with petroleum hydrocarbons. When the Army removed the tanks in 1993, about 225 cubic yards of soil was removed from the top 18 inches of the tank, piping, and fuel island areas. Additional site characterization was performed in 1993 and 1994 (4). In 1994 and 1995, the Army operated an extraction system for 9 months to remove LNAPL and petroleum hydrocarbons in groundwater. About 25 gallons of LNAPL were removed. In 1995, the Army excavated approximately 1,000 cubic yards of soil northwest of the POL tanks. The excavation extended to groundwater to remove petroleum hydrocarbons in the smear zone (between approximately 4 and 6 feet deep) (6). The Army prepared a draft CAP for the Building 637 Area in 1997 and a revised draft CAP in 1999 (4). In 1999, the Presidio Trust prepared the final CAP for the Building 637 Area (6). In accordance with the CAP, the Trust performed additional excavation in 6 areas (Areas A through F), including 2 areas related to the POL (Area B to a depth of 4 feet and Area C to a depth of 6 feet), to remove identified remaining soil in the unsaturated zone and smear zone that exceeded cleanup levels (7). Approximately 1,650 tons of soil and asphalt were removed by the Trust from all 6 areas. To enhance biodegradation of remaining petroleum hydrocarbons in the smear zone, the Trust added ORC to backfill placed in the smear zone. In 2000, ORC was also injected into the subsurface north and northwest of the tanks to further enhance biodegradation of remaining petroleum hydrocarbons in the smear zone (7). Groundwater monitoring has been performed in this area since 1994 (6). Groundwater monitoring implemented in accordance with the CAP is summarized in Table 4. In the 86 unsaturated zone soil samples collected from Building 637 Area locations remaining after all excavations were complete, the maximum concentrations of TPH-d and TPH-fo were 500 mg/kg and 810 mg/kg, respectively (6, 7). These are less than the soil cleanup levels specified in the CAP for TPH-d and TPH-fo of 700 mg/kg and 980 mg/kg, respectively (6). These cleanup levels are lower than the residential cleanup levels for TPH-d and TPH-fo in the RWQCB Order (8). In the 49 remaining unsaturated zone soil samples analyzed for TPH-g, maximum concentrations of TPH-g, benzene, toluene, and xylene were 1.9 mg/kg, 0.084 mg/kg, 0.34 mg/kg, and 0.34 mg/kg, respectively (4). These are less than the soil cleanup levels specified in the CAP for TPH-g, benzene, toluene, and xylene of 610 mg/kg, 1 mg/kg, 14 mg/kg, and 55 mg/kg, respectively (6). Ethylbenzene was not detected in these soil samples. The maximum benzene concentration is also less than the residential cleanup level in the RWQCB Order of 0.6 mg/kg (8). Residential cleanup levels in the RWQCB Order for TPH-g, toluene, and xylene are higher than the soil cleanup levels specified in the CAP (6, 8). Therefore, the petroleum hydrocarbon and BTEX concentrations remaining in soil are less than the residential cleanup levels.	Soil data indicate that petroleum hydrocarbon concentrations in soil are less than applicable cleanup levels specified in the CAP and less than residential cleanup levels specified in the RWQCB Order. Groundwater monitoring performed from June 2000 to August 2003 indicates that TPH-g and BTEX concentrations in groundwater are also less than applicable cleanup levels specified in the CAP (see Table 4).	NFA (b)	4, 6, 7, 8
637.2	AST Gasoline	20,000	Removed 1993	637 Mason Street	37° 48' 09" N 122° 27' 42" W	Tank was part of POL area. See above.	See above.	NFA (b)	4, 6, 7, 8
637.3	AST Gasoline	20,000	Removed 1993	637 Mason Street	37° 48' 09" N 122° 27' 42" W	Tank was part of POL area. See above.	See above.	NFA (b)	4, 6, 7, 8
637.4	AST Diesel	5,000	Removed 1993	637 Mason Street	37° 48' 09" N 122° 27' 43" W	Tank was part of POL area. See above.	See above.	NFA (b)	4, 6, 7, 8
637.5	AST Diesel	5,000	Removed 1993	637 Mason Street	37° 48' 09" N 122° 27' 43" W	Tank was part of POL area. See above.	See above.	NFA (b)	4, 6, 7, 8
637.6	AST Diesel	5,000	Removed 1993	637 Mason Street	37° 48' 09" N 122° 27' 43" W	Tank was part of POL area. See above.	See above.	NFA (b)	4, 6, 7, 8
637.VR	UST Gasoline	250	Removed 1993	637 Mason Street	37° 48' 09" N 122° 27' 42" W	Tank was part of POL area. See above.	See above.	NFA (b)	4, 6, 7, 8
638.OW	UST Oil/Water Mix	250	Removed 1993	638 Mason Street	37° 48' 10" N 122° 27' 41" W	Tank was associated with an oil/water separator near the POL area (4). POL operations and use of the oil/water separator ceased in 1989. The Army performed investigations from 1989 to 1994, which found soil contaminated with petroleum hydrocarbons above applicable cleanup levels (4, 6). The tank and associated oil/water separator were removed in 1993. The Army prepared a draft CAP for the Building 637 Area in 1997 and a revised draft CAP in 1999 (4). In 1999, the Presidio Trust prepared the final CAP for the Building 637 Area (6). In accordance with the CAP, the Trust performed additional excavation in 6 areas (Areas A through F). Area A, which was located around tank 638.OW, was excavated to depths of 2 and 4 feet to remove identified remaining soil in the unsaturated zone that exceeded cleanup levels (7). Approximately 1,650 tons of soil and asphalt were removed by the Trust from all 6 areas. In the 11 soil samples collected from Area A locations remaining after the excavation was complete, the maximum concentrations of TPH-d and TPH-fo were 16 mg/kg and 87 mg/kg, respectively (7). These concentrations are less than the soil cleanup levels specified in the CAP for TPH-d and TPH-fo of 700 mg/kg and 980 mg/kg, respectively (6). These concentrations are also lower than the residential cleanup levels for TPH-d and TPH-fo in the RWQCB Order (8).	Soil data indicate that petroleum hydrocarbon concentrations in soil are less than applicable cleanup levels specified in the CAP and less than residential cleanup levels specified in the RWQCB Order. Releases from this tank do not appear to have affected groundwater.	NFA (b)	4, 6, 7, 8
640.1	AST Hydraulic Oil	150	Removed 1996	640 Mason Street	37° 48' 10" N 122° 27' 45" W	Tank was used to store hydraulic fluid for a vehicle hoist in Building 640 (4). When the Army removed the tank in 1996, approximately 2,000 cubic yards of soil to the north and northeast was excavated to groundwater (encountered at depths of 4 to 6 feet). This excavation led to the discovery of tanks 640.3, 640.4, and 640.5, which were also removed at that time (4). The Army prepared a draft CAP for the Building 637 Area in 1997 and a revised draft CAP in 1999 (4). In 1999, the Presidio Trust prepared the final CAP for the Building 637 Area (6). In accordance with the CAP, the Trust performed additional excavation in 6 areas (Areas A through F). Area E, which was located near tank 640.1, was excavated to a depth of 4 feet to remove identified remaining soil in the unsaturated zone that exceeded cleanup levels (7). Approximately 1,650 tons of soil and asphalt were removed by the Trust from all 6 areas. In the 4 soil samples collected from Area E locations remaining after the excavation was complete, the maximum concentrations of TPH-d and TPH-fo were 53 mg/kg and 440 mg/kg, respectively (7). These concentrations are less than the soil cleanup levels specified in the CAP for TPH-d and TPH-fo of 700 mg/kg and 980 mg/kg, respectively (6). These concentrations are also lower than the residential cleanup levels for TPH-d and TPH-fo in the RWQCB Order (8).	Soil data indicate that petroleum hydrocarbon concentrations in soil are less than applicable cleanup levels specified in the CAP and less than residential cleanup levels specified in the RWQCB Order. Releases from this tank do not appear to have affected groundwater.	NFA (b)	4, 6, 7, 8
640.2	UST Waste Oil	300	Removed 1996	640 Mason Street	37° 48' 11" N 122° 27' 45" W	Tank stored waste oil from an associated oil/water separator (6). The Army removed the tank and associated oil/water separator in 1996. The Army prepared a draft CAP in 1997 for the Building 637 Area and a revised draft CAP in 1999 (4). In 1999, the Presidio Trust prepared the final CAP for the Building 637 Area (6). In accordance with the CAP, the Trust performed additional excavation in 6 areas (Areas A through F). Area F, which was located around tank 640.2, was excavated to a depth of 6 feet to remove identified remaining soil in the unsaturated zone and smear zone that exceeded cleanup levels (7). Approximately 1,650 tons of soil and asphalt were removed by the Trust from all 6 areas. To enhance biodegradation of remaining petroleum hydrocarbons in the smear zone, ORC was added to backfill placed in the smear zone (7). Groundwater monitoring has been performed in this area since 1994 (6). Groundwater monitoring implemented in accordance with the CAP is summarized in Table 4. Four excavation sidewall samples were collected from Area F. Pesticides and PCBs were not detected in these soil samples. The maximum concentrations of TPH-g and TPH-fo in these soil samples were 140 mg/kg and 76 mg/kg, respectively (7). These concentrations are less than the soil cleanup levels specified in the CAP for TPH-g and TPH-fo of 610 mg/kg and 980 mg/kg, respectively (6). These concentrations are also lower than the residential cleanup levels for TPH-d and TPH-fo in the RWQCB Order (8).	Soil data indicate that concentrations of petroleum hydrocarbons, pesticides, and PCBs in soil are less than applicable cleanup levels specified in the CAP and less than residential cleanup levels specified in the RWQCB Order and the Presidio-wide Cleanup Level Document. Groundwater monitoring performed from May 2001 to March 2003 indicates that TPH-g and BTEX concentrations in groundwater are also less than applicable cleanup levels specified in the CAP (see Table 4).	NFA (b)	4, 6, 7, 8
640.3	UST Diesel	250	Removed 1996	640 Mason Street	37° 48' 10" N 122° 27' 45" W	Tanks 640.3, 640.4, and 640.5 were discovered in 1996 during excavation of soil near tank 640.1. These tanks were removed at that time (4). The tanks were believed to store diesel (2). The 1996 excavation was located north of these tanks, extended to groundwater, and removed approximately 2,000 cubic yards of soil (4). The Army prepared a draft CAP for the Building 637 Area in 1997 and a revised draft CAP in 1999 (4). In 1999, the Presidio Trust prepared the final CAP for the Building 637 Area (6). In accordance with the CAP, the Trust performed additional excavation in 6 areas (Areas A through F), including an area northeast of these former tanks (Area C to a depth of 6 feet), to remove identified remaining soil in the unsaturated zone and smear zone that exceeded cleanup levels (7). Approximately 1,650 tons of soil and asphalt were removed by the Trust from all 6 areas. To enhance biodegradation of remaining petroleum hydrocarbons in the smear zone, the Trust added ORC to backfill placed in the smear zone. In 2000, ORC was injected into the subsurface north of these tanks to further enhance biodegradation of remaining petroleum hydrocarbons in the smear zone (7). Groundwater monitoring has been performed in this area since 1994 (6). Groundwater monitoring implemented in accordance with the CAP is summarized in Table 4. In the 86 unsaturated zone soil samples collected from Building 637 Area locations remaining after all the Building 637 area excavations were complete, the maximum concentrations of TPH-d and TPH-fo were 500 mg/kg and 810 mg/kg, respectively (6, 7). These concentrations are less than the soil cleanup levels specified in the CAP for TPH-d and TPH-fo of 700 mg/kg and 980 mg/kg, respectively (6). These concentrations are also lower than the residential cleanup levels for TPH-d and TPH-fo in the RWQCB Order (8). In the 49 remaining unsaturated zone soil samples analyzed for TPH-g, maximum concentrations of TPH-g, benzene, toluene, and xylenes were 1.9 mg/kg, 0.084 mg/kg, 0.34 mg/kg, and 0.34 mg/kg, respectively (4). These are less than the soil cleanup levels specified in the CAP for TPH-g, benzene, toluene, and xylenes of 610 mg/kg, 1 mg/kg, 14 mg/kg, and 55 mg/kg, respectively (6). Ethylbenzene was not detected in these soil samples. The maximum benzene concentration is also less than the residential cleanup level of 0.6 mg/kg in the RWQCB Order (8). The TPH-g, toluene, and xylenes concentrations are also less than the residential soil cleanup levels specified in the RWQCB Order (6, 8).	Soil data indicate that petroleum hydrocarbon concentrations in soil are less than applicable cleanup levels specified in the CAP and less than residential cleanup levels specified in the RWQCB Order. Groundwater monitoring performed from June 2000 to August 2003 indicates that TPH-g and BTEX concentrations in groundwater are also less than applicable cleanup levels specified in the CAP (see Table 4).	NFA (b)	2, 4, 6, 7, 8
640.4	UST Diesel	250	Removed 1996	640 Mason Street	37° 48' 10" N 122° 27' 44" W	See above.	See above.	NFA (b)	2, 4, 6, 7, 8
640.5	UST Diesel	500	Removed 1996	640 Mason Street	37° 48' 10" N 122° 27' 44" W	See above.	See above.	NFA (b)	2, 4, 6, 7, 8

TABLE 3
BUILDING 637 AREA CASE CLOSURE SUMMARY
Presidio of San Francisco, California

Site Number	Tank Type and Contents	Tank Volume (in gallons)	Tank Status	Tank Address	Tank Location (latitude, longitude)	Description of Remedial Investigations and Remedial Actions (a)	Effectiveness of Remedy	Proposed Future Work	Reference
642.1	AST Diesel	500	Removed 1996	642 Mason Street	37° 48' 11" N 122° 27' 44" W	The Army removed the tank in 1996 (3). Soil under the tank was sampled at that time and found to contain petroleum hydrocarbons above applicable cleanup levels (6). The Army prepared a draft CAP in 1997 for the Building 637 Area and a revised draft CAP in 1999 (4). In 1999, the Presidio Trust prepared the final CAP for the Building 637 Area (6). In accordance with the CAP, the Trust performed additional excavation in 6 areas (Areas A through F). Area D, which was located around tank 642.1, was excavated to a depth of 4 feet to remove identified remaining soil in the unsaturated zone that exceeded cleanup levels (7). Approximately 1,650 tons of soil and asphalt were removed by the Trust from all 6 areas. In the 4 soil samples collected from Area D locations remaining after the excavation was complete, the maximum concentration of TPH-fo was 83 mg/kg (7). This concentration is less than the soil cleanup level specified in the CAP for TPH-fo of 980 mg/kg (6). TPH-d was not detected in these soil samples. The maximum TPH-fo concentration remaining at this site is lower than the residential cleanup level for TPH-fo in the RWQCB Order (8).	Soil data indicate that petroleum hydrocarbon concentrations in soil are less than applicable cleanup levels specified in the CAP and less than residential cleanup levels specified in the RWQCB Order. Releases from this tank do not appear to have affected groundwater.	NFA (b)	3, 4, 6, 7, 8
642.2	UST Diesel	500	Removed 1995	642 Mason Street	37° 48' 11" N 122° 27' 43" W	Tank was used to store diesel for an auxiliary generator (1). The Army removed the tank in 1995. A soil sample collected at the time of tank removal contained non-detectable concentrations of TPH-d and 210 mg/kg of TPH-fo, which is less than the cleanup level for TPH-fo of 980 mg/kg (1). The Army indicated that this tank received a "No Further Action" letter from the City and County of San Francisco (6). The Army prepared a draft CAP in 1997 for the Building 637 Area and a revised draft CAP in 1999 (4). In 1999, the Presidio Trust prepared the final CAP for the Building 637 Area (6). Excavation Area D extended into the former location of tank 642.2 (7). In the 4 soil samples collected from Area D locations remaining after the excavation was complete, the maximum concentration of TPH-fo was 83 mg/kg (7). This concentration is less than the soil cleanup level specified in the CAP for TPH-fo of 980 mg/kg (6). TPH-d was not detected in these soil samples. The maximum TPH-fo concentration remaining at this site is lower than the residential cleanup level for TPH-fo in the RWQCB Order (8).	This tank previously received a NFA letter from the City and County of San Francisco. Soil data indicate that petroleum hydrocarbon concentrations in soil are less than applicable cleanup levels specified in the CAP and less than residential cleanup levels specified in the RWQCB Order. Releases from this tank do not appear to have affected groundwater.	NFA (b)	1, 4, 6, 7, 8
FDS	Pipeline Fuel Oil	-	Removed 1998	-	-	The Army removed FDS pipelines in the Building 637 Area in 1998 (4). The Building 637 area includes portions of FDS areas CF2, CF-3, CF-4, and CF-12, as identified on the index map of the FDS removal report (5). After FDS removal, some soil exceeding applicable cleanup levels remained. The Army prepared a draft CAP in 1997 for the Building 637 Area and a revised draft CAP in 1999 (4). In 1999, the Presidio Trust prepared the final CAP for the Building 637 Area (6). In accordance with the CAP, the Trust performed additional excavation in 6 areas (Areas A through F). Area B, which included the former FDS area exceeding cleanup levels, was excavated to a depth of 4 feet to remove identified remaining soil in the unsaturated zone that exceeded cleanup levels (7). Approximately 1,650 tons of soil and asphalt were removed by the Trust from all 6 areas. In the 4 soil samples collected from Area B locations remaining after the excavation was complete, the maximum concentrations of TPH-d and TPH-fo were 210 mg/kg and 540 mg/kg, respectively (7). These concentrations are less than the soil cleanup levels specified in the CAP for TPH-d and TPH-fo of 700 mg/kg and 980 mg/kg, respectively (6). These concentrations are also lower than the residential cleanup levels for TPH-d and TPH-fo in the RWQCB Order (8).	Soil data indicate that petroleum hydrocarbon concentrations in soil are less than applicable cleanup levels specified in the CAP and less than residential cleanup levels specified in the RWQCB Order. Releases from FDS locations in the Building 637 Area do not appear to have affected groundwater.	NFA (b)	4, 5, 6, 7, 8

References:

- 1 Montgomery Watson. *Closure Report, Underground Storage Tank, Building 642, Old Mason Street, Presidio of San Francisco* , 28 March 1996.
- 2 Allied Technology Group. *Underground Storage Tank Removal Report for Presidio of San Francisco, Building # 640, San Francisco, California* , January 1997.
- 3 IT Corporation. *Aboveground Storage Tank Closure Report, Building 642, Presidio of San Francisco* , March 1997.
- 4 Montgomery Watson. *Building 637 Area Revised Draft Final Corrective Action Plan, Presidio of San Francisco* . April 1999.
- 5 IT Corporation. *Fuel Distribution System Removal Report, Presidio of San Francisco, California* , May 1999.
- 6 The Presidio Trust. *Final Corrective Action Plan, Building 637 Area, The Presidio of San Francisco* . August 1999.
- 7 The Presidio Trust. *Excavation Report for the Building 637 Area, The Presidio of San Francisco* , 22 June 2000.
- 8 California Regional Water Quality Control Board, San Francisco Bay Region, *Order No. R2-2003-0080, Revised Site Cleanup Requirements and Rescission of Order No. 91-082 and Order No. 96-070 for the Property Located at the Presidio of San Francisco, City and County of San Francisco* , 20 August 2003.

Notes:

- (a) Background about these sites and results of the implementation of the Presidio Trust's CAP are described in more detail in the CAP and the Building 637 Area Excavation Report. Soil sampling data are included in Appendix A. Former tank locations and excavation areas are shown on Figure 2. Specific references are provided in parentheses within the table.
- (b) NFA indicates the requirements of the CAP have been met and no further action is necessary, except for the proper decommissioning of the existing monitoring wells in the Building 637 Area.

Abbreviations:

AST	above-ground storage tank
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAP	Final Corrective Action Plan, Building 637 Area
FDS	fuel distribution system
LNAPL	light non-aqueous phase liquid
NFA	no further action
DRC	Oxygen Release Compound, provided by Regenesis
Order	RWQCB Order No. R2-2003-0080, Revised Site Cleanup Requirements and Rescission of Order No. 91-082 and Order No. 96-070 for the Property Located at the Presidio of San Francisco, City and County of San Francisco
PCBs	polychlorinated biphenyls
POL	petroleum-oil-lubricant
RWQCB	California Regional Water Quality Control Board, San Francisco Bay Region
TPH-g	total petroleum hydrocarbons quantified as gasoline
TPH-d	total petroleum hydrocarbons quantified as diesel
TPH-fo	total petroleum hydrocarbons quantified as fuel oil
UST	underground storage tank

TABLE 4
STATUS OF GROUNDWATER MONITORING - BUILDING 637 AREA
 Presidio of San Francisco, California

Well ID	Water-Bearing Zone	Objectives of Monitoring Well	Analytes and Analytical Methods (a)	Required Monitoring Frequency and Duration	Groundwater Monitoring Summary (b)	Proposed Future Work
637-01R	A2	Monitor groundwater flow direction in A2 Zone. Measure TPH-g and BTEX.	TPH-g (EPA 8015M) BTEX (EPA 8021B or 8260B)	Quarterly for 1 year.	Remedial activities were completed in March 2000. The Presidio Trust collected groundwater samples from this well 8 times from June 2000 to December 2002. The maximum TPH-g and xylenes concentrations detected in groundwater were 190 ug/l and 0.9 ug/l, respectively, which are less than the applicable groundwater cleanup levels for TPH-g and xylenes of 13,000 ug/l and 232,000 ug/l, respectively. Benzene, toluene, and ethylbenzene were not detected in groundwater samples.	NFA (c)
637-19	A2	Monitor groundwater flow direction in A2 Zone. Measure TPH-g and BTEX.	TPH-g (EPA 8015M) BTEX (EPA 8021B or 8260B)	Quarterly for 1 year.	Remedial activities were completed in March 2000. The Presidio Trust collected groundwater samples from this well 7 times from May 2001 to December 2002. The maximum xylenes concentration detected in groundwater was 2.7 ug/l, which is less than the applicable groundwater cleanup level for xylenes of 232,000 ug/l. TPH-g, benzene, toluene, and ethylbenzene were not detected in groundwater samples.	NFA (c)
637-26	A1	Monitor groundwater flow direction in A1 Zone. Measure TPH-g, BTEX, and DO downgradient of ORC treatment area.	TPH-g (EPA 8015M) BTEX (EPA 8021B or 8260B) DO (DO Field Probe)	Quarterly for 2 years.	Remedial activities were completed in March 2000. The Presidio Trust collected groundwater samples from this well 8 times from June 2000 to December 2002. The maximum TPH-g, ethylbenzene, and xylenes concentrations detected in groundwater were 620 ug/l, 2.4 ug/l, and 4.9 ug/l, respectively, which are less than the applicable groundwater cleanup levels for TPH-g, ethylbenzene, and xylenes of 13,000 ug/l, 1,000 ug/l, and 232,000 ug/l, respectively. Benzene and toluene were not detected in groundwater samples.	NFA (c)

TABLE 4
STATUS OF GROUNDWATER MONITORING - BUILDING 637 AREA
Presidio of San Francisco, California

Well ID	Water-Bearing Zone	Objectives of Monitoring Well	Analytes and Analytical Methods (a)	Required Monitoring Frequency and Duration	Groundwater Monitoring Summary (b)	Proposed Future Work
637-27	A1	Monitor groundwater flow direction in A1 Zone. Measure TPH-g and BTEX.	TPH-g (EPA 8015M) BTEX (EPA 8021B or 8260B)	Quarterly for 1 year.	Remedial activities were completed in March 2000. The Presidio Trust collected groundwater samples from this well 7 times from May 2001 to December 2002. TPH-g and BTEX were not detected in groundwater samples.	NFA (c)
637-33	A2	Monitor groundwater flow direction in A2 Zone. Measure TPH-g and BTEX.	TPH-g (EPA 8015M) BTEX (EPA 8021B or 8260B)	Quarterly for 1 year.	Remedial activities were completed in March 2000. The Presidio Trust collected groundwater samples from this well 7 times from May 2001 to December 2002. TPH-g and BTEX were not detected in groundwater samples.	NFA (c)
637-34	A1	Monitor groundwater flow direction in A1 Zone. Wetland early-detection well (west of sentry wells).	TPH-g (EPA 8015M) BTEX (EPA 8021B or 8260B)	Quarterly for 2 years, semi-annually thereafter. (d)	Remedial activities were completed in March 2000. The Presidio Trust collected groundwater samples from this well 10 times from June 2000 to August 2003. TPH-g and BTEX were not detected in groundwater samples.	NFA (c)
637-35	A1	Monitor groundwater flow direction in A1 Zone. Wetland sentry well.	TPH-g (EPA 8015M) BTEX (EPA 8021B or 8260B)	Quarterly for 2 years, semi-annually thereafter. (d)	Remedial activities were completed in March 2000. The Presidio Trust collected groundwater samples from this well 10 times from June 2000 to August 2003. The maximum xylenes concentration detected in groundwater was 0.63 ug/l, which is less than the applicable groundwater cleanup level for xylenes (within 150 feet of wetlands) of 130 ug/l. TPH-g, benzene, toluene, and ethylbenzene were not detected in groundwater samples. TPH-g and BTEX concentrations have been non-detect for 5 consecutive monitoring events.	NFA (c)
637-36	A1	Monitor groundwater flow direction in A1 Zone. Wetland sentry well.	TPH-g (EPA 8015M) BTEX (EPA 8021B or 8260B)	Quarterly for 2 years, semi-annually thereafter. (d)	Remedial activities were completed in March 2000. The Presidio Trust collected groundwater samples from this well 10 times from May 2001 to August 2003. TPH-g and BTEX were not detected in groundwater samples.	NFA (c)

TABLE 4
STATUS OF GROUNDWATER MONITORING - BUILDING 637 AREA
 Presidio of San Francisco, California

Well ID	Water-Bearing Zone	Objectives of Monitoring Well	Analytes and Analytical Methods (a)	Required Monitoring Frequency and Duration	Groundwater Monitoring Summary (b)	Proposed Future Work
637-37	A1	Monitor groundwater flow direction in A1 Zone. Wetland sentry well.	TPH-g (EPA 8015M) BTEX (EPA 8021B or 8260B)	Quarterly for 2 years, semi-annually thereafter. (d)	Remedial activities were completed in March 2000. The Presidio Trust collected groundwater samples from this well 10 times from June 2000 to August 2003. TPH-g and BTEX were not detected in groundwater samples above laboratory reporting limits.	NFA (c)
637-38	A1	Monitor groundwater flow direction in A1 Zone. Measure TPH-g, BTEX, and DO downgradient of ORC treatment area.	TPH-g (EPA 8015M) BTEX (EPA 8021B or 8260B) DO (DO Field Probe)	Quarterly for 2 years.	Remedial activities were completed in March 2000. The Presidio Trust collected groundwater samples from this well 9 times from June 2000 to March 2003. The maximum TPH-g, toluene, and xylenes concentrations detected in groundwater were 320 ug/l, 4.8 ug/l, and 1.2 ug/l, respectively, which are less than the applicable groundwater cleanup levels for TPH-g, toluene, and xylenes of 13,000 ug/l, 2,100 ug/l, and 232,000 ug/l, respectively. Benzene and ethylbenzene were not detected in groundwater samples.	NFA (c)
637-39R	A1	Monitor groundwater flow direction in A1 Zone. Measure TPH-g, BTEX, and DO downgradient of ORC treatment area.	TPH-g (EPA 8015M) BTEX (EPA 8021B or 8260B) DO (DO Field Probe)	Quarterly for 2 years.	Remedial activities were completed in March 2000. The Presidio Trust collected groundwater samples from this well 7 times from August 2001 to March 2003. TPH-g and BTEX were not detected in groundwater samples.	NFA (c)

TABLE 4
STATUS OF GROUNDWATER MONITORING - BUILDING 637 AREA
 Presidio of San Francisco, California

Well ID	Water-Bearing Zone	Objectives of Monitoring Well	Analytes and Analytical Methods (a)	Required Monitoring Frequency and Duration	Groundwater Monitoring Summary (b)	Proposed Future Work
637-40	A2	Monitor groundwater flow direction in A2 Zone. Measure HVOC concentrations until MCLs are achieved.	HVOCs (EPA 8260)	Annually until MCLs achieved for 2 consecutive monitoring events.	Remedial activities were completed in March 2000. The Presidio Trust collected groundwater samples from this well 8 times from May 2001 to March 2003. The maximum TPH-g, benzene, toluene, ethylbenzene, and xylenes concentrations detected in groundwater were 85 ug/l, 0.88 ug/l, 0.97 ug/l, 1.2 ug/l, and 5.6 ug/l, respectively. These concentrations are less than the applicable groundwater cleanup levels for TPH-g, benzene, toluene, ethylbenzene, and xylenes of 13,000 ug/l, 650 ug/l, 2,100 ug/l, 1,000 ug/l, and 232,000 ug/l, respectively. The maximum acetone, c-1,2-DCE, PCE, and vinyl chloride concentrations detected in groundwater were 20 ug/l, 0.9 ug/l, 1.7 ug/l, and 1.1 ug/l, respectively. An MCL for acetone does not exist. The c-1,2-DCE and PCE concentrations are less than their MCLs of 6 ug/l and 5 ug/l, respectively. The maximum vinyl chloride concentration is greater than its MCL of 0.5 ug/l. No other VOCs have been detected. All HVOC concentrations have been below their MCLs for the 2 most recent consecutive monitoring events; thus, the HVOC cleanup level has been met.	NFA (c)

TABLE 4
STATUS OF GROUNDWATER MONITORING - BUILDING 637 AREA
 Presidio of San Francisco, California

Well ID	Water-Bearing Zone	Objectives of Monitoring Well	Analytes and Analytical Methods (a)	Required Monitoring Frequency and Duration	Groundwater Monitoring Summary (b)	Proposed Future Work
LF07GW11	A1	Monitor groundwater flow direction in A1 Zone. Measure TPH-g, BTEX, and DO downgradient of ORC treatment area.	TPH-g (EPA 8015M) BTEX (EPA 8021B or 8260B) DO (DO Field Probe)	Quarterly for 2 years.	Remedial activities were completed in March 2000. The Presidio Trust collected groundwater samples from this well 9 times from July 2000 to December 2002. The maximum TPH-g, benzene, toluene, and xylenes concentrations detected in groundwater were 240 ug/l, 2.6 ug/l, 0.7 ug/l, and 0.73 ug/l, respectively. These concentrations are less than the applicable groundwater cleanup levels for TPH-g, benzene, toluene, and xylenes of 13,000 ug/l, 650 ug/l, 2,100 ug/l, and 232,000 ug/l, respectively. Ethylbenzene has not been detected in groundwater samples.	NFA (c)

Notes:

- (a) Analytical methods are U.S. Environmental Protection Agency methods (SW-846, Update III), unless otherwise indicated.
- (b) Groundwater monitoring data are tabulated in Appendix B of this document.
- (c) The results of groundwater monitoring indicated the requirements of the CAP have been met and no further action ("NFA") is necessary for groundwater, except for the proper decommissioning of the existing monitoring wells.
- (d) In accordance with the CAP, the Trust may request to terminate groundwater monitoring after 3 years if at least one of the following conditions is met: (1) the groundwater flow direction in the Building 637 Area is consistently to the north or northwest (i.e., not toward the wetlands); (2) TPH-g has not been detected in the wells for the last four consecutive rounds of monitoring; or (3) the trend of TPH-g concentrations is shown to be stable or decreasing using a statistical evaluation.

Abbreviations:

BTEX	benzene, toluene, ethylbenzene, and xylenes	NFA	no further action
c-1,2-DCE	cis-1,2-dichloroethene	ORC	Oxygen Release Compound, provided by Regenesis
CAP	Final Corrective Action Plan, Building 637 Area	PCE	tetrachloroethene
DO	dissolved oxygen	TPH-g	total petroleum hydrocarbons quantified as gasoline
HVOCs	halogenated volatile organic chemicals	VOCs	volatile organic compounds
MCLs	Maximum Contaminant Levels		

TABLE 5
SUMMARY OF SITES FOR CLOSURE CERTIFICATION
BUILDING 637 AREA
 Presidio of San Francisco, California

Building 637 Area Site	Closure Certification Requested	
	RWQCB	DTSC
<i>Tank Sites</i>		
Tank 637.1	Yes	-
Tank 637.2	Yes	-
Tank 637.3	Yes	-
Tank 637.4	Yes	-
Tank 637.5	Yes	-
Tank 637.6	Yes	-
Tank 637.VR	Yes	-
Tank 637.OW	Yes	-
Tank 640.1	Yes	-
Tank 640.2	Yes	Yes
Tank 640.3	Yes	-
Tank 640.4	Yes	-
Tank 640.5	Yes	-
Tank 642.1	Yes	-
Tank 642.2	Yes	-
<i>Other Sites</i>		
Building 638	Yes	-
FDS Segments in Building 637 Area	Yes	-
<i>Groundwater Contamination</i>		
Building 634	Yes	-
Building 637	Yes	-
Building 638	Yes	-
Building 639	Yes	-
Building 640	Yes	-
Building 641	Yes	-
Building 642	Yes	-
Building 643	Yes	Yes

Based on the available information and documentation provided by the Presidio Trust in accordance with Task 12 of RWQCB Order No. R2-2003-0080, the California Environmental Protection Agency, Regional Water Quality Control Board ("RWQCB") certifies that the above marked sites and associated tanks have been closed and are suitable for unrestricted use. By signing below, RWQCB acknowledges that the remedial requirements for the above marked sites have been met and no further action is required.

Signed: _____

Date: _____

Name: _____

Title: _____

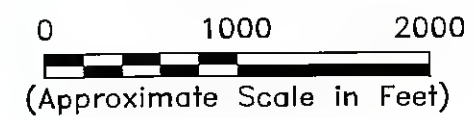
Based on the available information and documentation, the California Environmental Protection Agency, Department of Toxic Substances Control ("DTSC") certifies that the above marked sites have been closed and are suitable for unrestricted use. In addition, DTSC hereby provides a Letter of Certification for the above marked sites in accordance with Section 5.16 of the Consent Agreement between the Trust, NPS, and DTSC, dated 30 August 1999. By signing below, DTSC certifies that the remedial requirements for the above marked sites have been met and no further action is required.

Signed: _____

Date: _____

Name: _____

Title: _____



Notes:

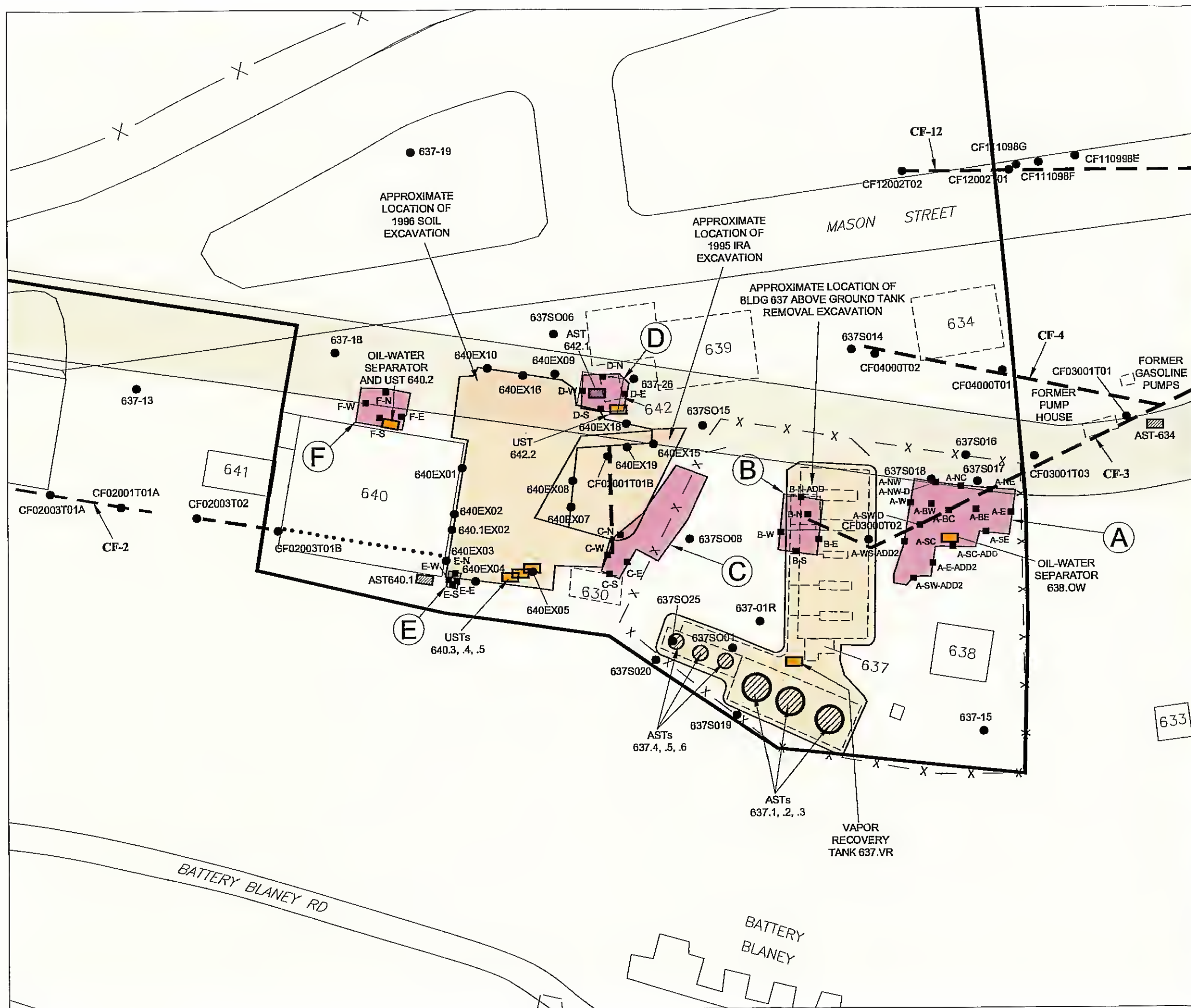
1. All locations are approximate.
2. Basemap developed from site plan provided by Department of Interior, National Park Service and topographic map, dated 5 June 1997, prepared by Tawill, Inc.
3. PSH is the Public Health Service Hospital.

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Site Location Map



Presidio Trust
San Francisco, CA
March 2004
EKI A000003.10
Figure 1



N

0 60 120

(Approximate Scale in Feet)

LEGEND

- Building 637 Area Boundary
- X — Fence
- Former Building or Structure Location
- Mason Street Realignment
- Former Aboveground Storage Tank (AST) Location
- Former Underground Storage Tank (UST) Location
- Shallow Soil Sampling Location
- Trust Confirmation Soil Sampling Location
- Army Excavation Area
- Trust Excavation Area
- Former Fuel Distribution System (FDS) Line
- FDS Line Abandoned in Place
- 634 Building and Number
- A Trust Excavation Area ID
- CF-2 FDS Section ID

Notes:

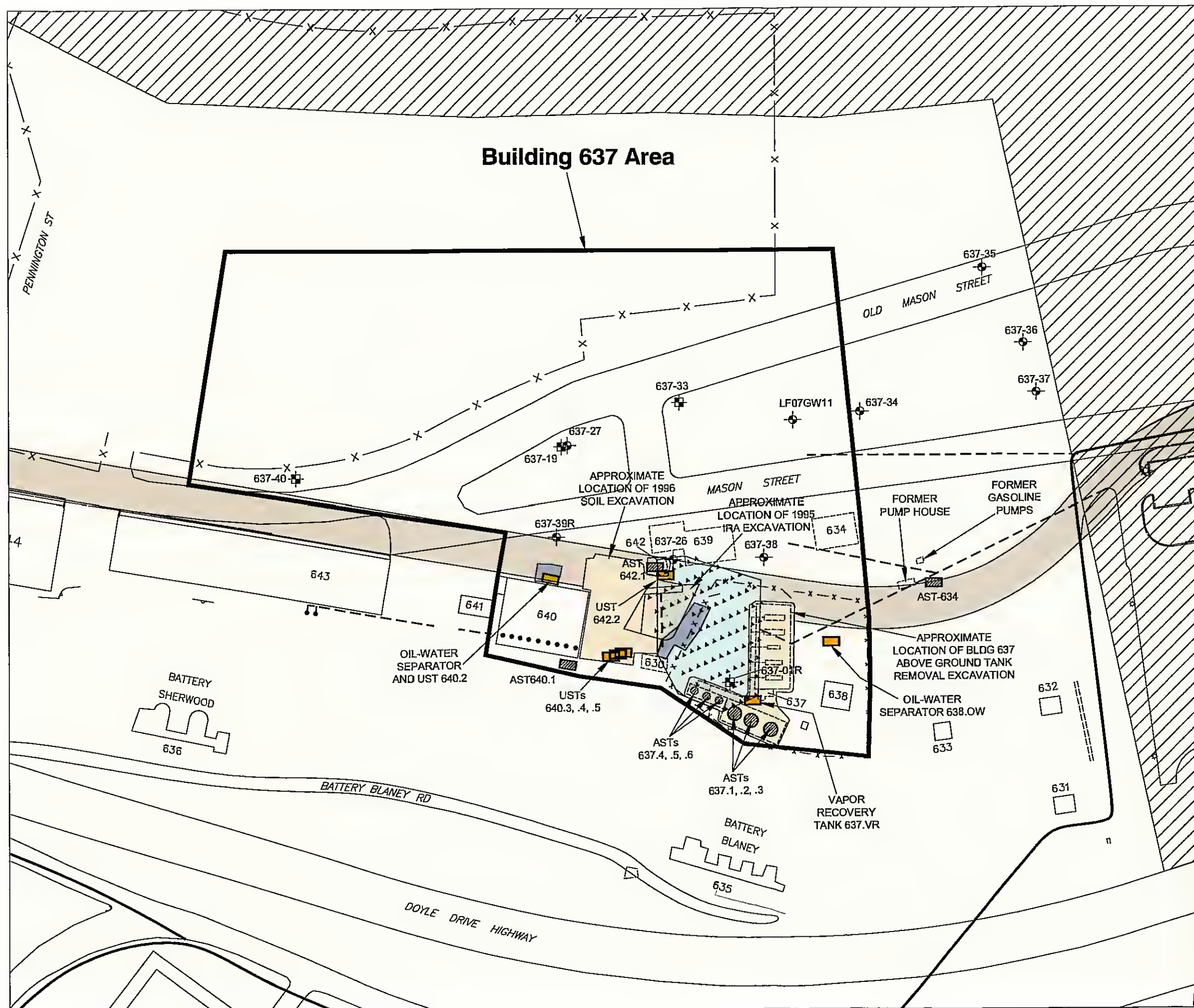
1. All locations are approximate.
2. Base map was provided by Department of the Interior, National Park Service.
3. The size and orientation of the USTs and ASTs are schematic (e.g., not representative of actual sizes).
4. Shallow soil indicates soil samples collected from depths less than 4 feet below ground surface ("bgs").
5. The northern portion of Area C was excavated to fixed dimensions; confirmation sampling was not conducted.

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Final Extent of Excavations
Building 637 Area



Presidio Trust
San Francisco, CA
March 2004
EKI A000003.10
Figure 2



LEGEND

- x — Fence
- - - - - Former Building or Structure Location
- Mason Street Realignment
- ⊕ A1 Zone Monitoring Well
- ⊕ A2 Zone Monitoring Well
- ▨ Saltwater Ecological Protection Zone
- ⊙ Former Aboveground Storage Tank (AST) Location
- ▨ Former Underground Storage Tank (UST) Location
- Former Excavation Area
- - - - - Former Fuel Distribution System (FDS) Line
- ⋯ FDS Line Abandoned in Place
- 634 Building and Number
- Location Where ORC was Placed Excavation Backfill (4 to 6 feet bgs)
- Approximate ORC Injection Area ("." Represents Approximate ORC Injection Point)

Notes:

1. All locations are approximate.
2. Base map was provided by Department of the Interior, National Park Service.
3. The size and orientation of the USTs and ASTs are schematic (e.g., not representative of actual sizes).

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ORC Treatment Areas and Monitoring Well Network Building 637 Area



Presidio Trust
San Francisco, CA
March 2004
EKL A000003.10

Figure 3

APPENDIX B

GROUNDWATER MONITORING RESULTS FOR THE BUILDING 637 AREA

TABLE B
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR
BUILDING 637 AREA, THIRD AND FOURTH QUARTERS, 2004

Presidio of San Francisco, California

Well Name	Sample Date	Concentration (µg/L)				
		TPH	VOCs			
		TPH as Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes
637-34	8/13/2003	<50.0	<0.5	<0.5	<0.5	<0.5
637-35	8/13/2003	<50.0	<0.5	<0.5	<0.5	<0.5
637-36	8/13/2003	<50.0	<0.5	<0.5	<0.5	<0.5
637-37	8/13/2003	<50.0	<0.5	<0.5	<0.5	<0.5

Abbreviations:

<0.50
 µg/L
 Compound not detected at or above indicated laboratory detection
 Micrograms per liter

Notes:

(a) Data in this table will be published in the *Semi-Annual Groundwater Monitoring Report, Third and Fourth Quarters 2003, Presidio-Wide Quarterly Groundwater Monitoring Program.*

Table A-5-3
Results of General Chemistry Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Alkalinity Total	Bicarbonate	Chloride	Dissolved Oxygen	Fluoride	N as Nitrate ²	N as Nitrite	N as Nitrate + Nitrite	Sulfate
	Analytical Method ¹	E310.1	E310.1	E300.0/ SW9056	Field	E300.0/ E340.2/ SW9056	E300.0/ E353.2/ SW9056	E300.0/ E353.2/ SW9056	E353.2	E300.0/ SW9056
637-01R (A2 Zone) DUP0829022B	12/03/02	(mg/L) 450	(mg/L) 450	(mg/L) 110	(mg/L) 1	(mg/L) 0.25	(mg/L) < 0.05	(mg/L) < 0.05	(mg/L) NA	(mg/L) 47
	08/29/02	490	490	110	0.8	0.25	< 0.25	< 0.25	NA	33
	08/29/02	470	470	100	--	0.33	< 0.25	< 0.25	NA	38
	05/29/02	470	470	110	0.8	0.38	0.08	< 0.05	NA	62
	03/05/02	550	550	110	0.8	0.44	< 0.05	< 0.05	NA	34
DUP0305023B	03/05/02	520	520	110	--	0.46	< 0.05	< 0.05	NA	38
	12/03/01	500	500	140	1.4	0.3	0.02 I,J	< 0.05 UJ	NA	26
	12/03/01	500	500	140	--	0.3	0.03 I,J	< 0.05 UJ	NA	24
DUP1203012A 637-01RCL	12/03/01	460	460	140	--	< 1	< 1	< 1	NA	24
	08/28/01	500	500	120	1	0.3	0.16	0.05	NA	19
	05/15/01	480	480	110	2.4	0.25	1.7 J-	< 0.05 UJ	NA	34
	06/26/00	NA	NA	NA	1.01	NA	NA	NA	NA	NA
	05/06/99	NA	NA	NA	0.21	NA	NA	NA	NA	NA
	02/04/99	445	445	276	0.15	NA	< 0.2	NA	NA	91.9
	11/04/98	445	445	263	0.98	NA	< 0.2	NA	NA	77.8
	08/03/98	440	440	130	0.34	NA	< 2	NA	NA	39
	05/07/98	404	404	103	0.41	NA	0.041	NA	NA	68.8
	02/09/98	446	446	98	0.15	NA	0.031	NA	NA	70
	10/13/97	468	468	236	0.60	NA	0.066 (33)	NA	NA	83.9
	07/17/97	490	490	161	0.21	NA	0.041	NA	0.16	52.7
	04/09/97	490	490	107	0.42	NA	0.056	NA	NA	72.4
	01/23/97	519	519	141	0.15	NA	0.03	NA	0.06	56.7

Table A-5-3
Results of General Chemistry Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Alkalinity Total	Bicarbonate	Chloride	Dissolved Oxygen	Fluoride	N as Nitrate ²	N as Nitrite	N as Nitrate + Nitrite	Sulfate
	Analytical Method ¹	E310.1	E310.1	E300.0/ SW9056	Field	E300.0/ E340.2/ SW9056	E300.0/ E353.2/ SW9056	E300.0/ E353.2/ SW9056	E353.2	E300.0/ SW9056
637-19 (A2 Zone)		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
	12/03/02	290	290	110	0.1	0.23	< 0.05	< 0.05	NA	84
	09/03/02	310	310	120	0.6	0.39	< 0.05	< 0.05	NA	84
	06/03/02	350	350	120	0.6	0.3	< 0.05	< 0.05	NA	92
	03/05/02	330	330	100	0.8	0.35	< 0.05	< 0.05	NA	98
	11/27/01	280	280	120	0.5	0.43	< 0.05 UJ	< 0.05 UJ	NA	110
	08/28/01	340	340	120	3.5	0.34	< 0.05	< 0.05	NA	99
	05/17/01	340	340	120	3.9	0.4	< 0.05	< 0.05	NA	99
	05/03/99	NA	NA	NA	0.14	NA	NA	NA	NA	NA
	02/01/99	352	352	130	0.28	NA	< 0.2	NA	NA	89
	10/29/98	282	282	119	0.60	NA	0.06	NA	NA	90
	07/30/98	300	300	87	0.18	NA	1.6	NA	NA	78
	05/11/98	380	380	139	7.56 (J35)	NA	0.184	NA	NA	75.4
	02/05/98	334	334	137	0.60	NA	0.118 (J29)	NA	NA	104
	10/09/97	332	332	112	0.01	NA	0.17	NA	NA	108
637-26 DU1205021A (A1 Zone)	07/15/97	327	327	117	0.50	NA	0.152	NA	0.097	91.8
	04/08/97	376 ¹	376	135	0.21	NA	0.021	NA	NA	72.3
	01/22/97	302	302	133	0.41	NA	0.27	NA	0.36	79.4
	12/05/02	890	890	95	0.08	0.18	< 0.05	< 0.05	NA	36
	12/05/02	910	910	95	--	0.22	< 0.05	< 0.05	NA	36
	08/29/02	810	810	92	0.12	0.28	< 0.25	< 0.25	NA	39
	05/29/02	640	640	110	0.3	0.31	< 0.05	< 0.05	NA	15
	03/11/02	350	350	69	0.13	0.2	< 0.05	< 0.05	NA	61
	12/03/01	760	760	110	0.17	0.38	< 0.05 UJ	< 0.05 UJ	NA	4.2
	08/29/01	700	700	120	0.26	0.32	< 0.05	< 0.05	NA	15
	05/14/01	500	500	95	0.28	0.25	< 0.05	< 0.05	NA	67

Table A-5-3
Results of General Chemistry Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Alkalinity Total	Bicarbonate	Chloride	Dissolved Oxygen	Fluoride	N as Nitrate ²	N as Nitrite	N as Nitrate + Nitrite	Sulfate
	Analytical Method ¹	E310.1	E310.1	E300.0/ SW9056	Field	E300.0/ E340.2/ SW9056	E300.0/ E353.2/ SW9056	E300.0/ E353.2/ SW9056	E353.2	E300.0/ SW9056
637-26 (A1 Zone)		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
	06/26/00	NA	NA	NA	1.71	NA	NA	NA	NA	NA
	04/28/99	NA	NA	NA	0.17	NA	NA	NA	NA	NA
	01/28/99	402	402	100	0.20	NA	< 0.2	NA	NA	NA
	10/28/98	762	762	330	0.70	NA	< 0.4	NA	NA	37.1
	07/29/98	570	570	79	0.39	NA	< 0.8	NA	NA	< 5
	05/06/98	646	646	109	0.16	NA	0.167	NA	NA	19
	02/10/98	410	410	89	0.74	NA	0.247	NA	NA	19.5
	10/14/97	658	658	176	0.41	NA	0.043	NA	NA	123
	07/17/97	593	593	170	0.10	NA	< 0.01	NA	NA	0.602
	04/10/97	500	500	97	0.14	NA	< 0.01	NA	0.11	0.392
	01/24/97	437	437	105	0.36	NA	< 0.01	NA	NA	62.1
	12/05/02	520	520	130	0.12	0.27	< 0.05	< 0.05	< 0.05	62
	08/29/02	410	410	95	0.18	0.42	< 0.25	< 0.25	NA	330
637-27 (A1 Zone)	05/29/02	400	400	150	0.24	0.46	< 0.1	< 0.1	NA	360
	03/11/02	130	130	35	2.56	0.46	0.08	< 0.05	NA	670
	11/27/01	130	130	160	1.1	0.43	0.04 J	< 0.05	NA	140
	08/29/01	330	330	120	0.39	0.5	0.04 J	< 0.05	NA	650
	05/14/01	390	390	220	0.28	0.27	< 0.05	< 0.05	NA	440
	05/03/99	NA	NA	NA	1.62	NA	NA	NA	NA	840
	02/01/99	295	295	74.1	0.89	NA	0.072	NA	NA	NA
	10/29/98	711	711	311	0.56	NA	< 0.2	NA	NA	78
	07/30/98	550	550	170	0.20	NA	< 2	NA	NA	16
	05/11/98	520	520	184	0.90	NA	0.159	NA	NA	56
	02/05/98	582	582	269	2.57 (J35)	NA	0.141 (J29)	NA	NA	34.4
										23.4

Table A-5-3
Results of General Chemistry Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Alkalinity Total	Bicarbonate	Chloride	Dissolved Oxygen	Fluoride	N as Nitrate ²	N as Nitrite	N as Nitrate + Nitrite	Sulfate
	Analytical Method ¹	E310.1	E310.1	E300.0/ SW9056	Field	E300.0/ E340.2/ SW9056	E300.0/ E353.2/ SW9056	E300.0/ E353.2/ SW9056	E353.2	E300.0/ SW9056
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
637-27 (A1 Zone)	10/09/97	613	613	212	0.71	NA	0.01	NA	NA	19.2
	07/15/97	505	505	120	0.62	NA	NA	NA	0.08	53.3
	04/08/97	610	610	342	0.67	NA	0.286	NA	NA	73
	01/22/97	617	617	677	0.45	NA	0.29	NA	0.35	169
637-33 (A2 Zone)	12/03/02	260	260	290	0.2	0.18	< 0.05	< 0.05	NA	120
	09/03/02	270	270	320	0.6	0.34	< 0.05	< 0.05	NA	120
	06/03/02	290	290	320	0.3	0.23	< 0.05	< 0.05	NA	110
	03/05/02	280	280	310	1.1	0.26	< 0.05	< 0.05	NA	120
	11/27/01	280	280	260	0.5	0.37	< 0.05 UJ	< 0.05 UJ	NA	120
	08/28/01	270	270	280	3.9	0.27	< 0.05	< 0.05	NA	110
DUP0828013A	08/28/01	270	270	300	--	0.25	< 0.05	< 0.05	NA	110
DUP0517013A	05/17/01	310	310	240	3.41	0.33	< 0.05	< 0.05	NA	96
	05/17/01	310	310	240	--	0.27	< 0.05	< 0.05	NA	99
	05/04/99	NA	NA	NA	0.31	NA	NA	NA	NA	NA
	02/02/99	290	290	300	0.20	NA	< 0.4	NA	NA	114
	11/02/98	317	317	228	0.36	NA	< 0.2	NA	NA	119
	08/03/98	290	290	249	0.39	NA	< 3.2	NA	NA	98
637-34 (A1 Zone)	05/07/98	288	288	270	0.46	NA	0.018	NA	NA	107
	03/05/98	280	280	254	0.19	NA	0.013	NA	NA	113
	03/11/03	470	470	150	1.0	0.33	< 0.05	< 0.05	NA	450
	12/03/02	560	560	86	0.2	0.32	< 0.05	< 0.05	NA	120
	09/03/02	470	470	70	0.4	0.56	< 0.05	< 0.05	NA	170
	06/03/02	510	510	130	0.2	0.42	< 0.05	< 0.05	NA	450
	03/05/02	520	520	140	0.5	0.36	< 0.05	< 0.05	NA	400

Table A-5-3
Results of General Chemistry Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Alkalinity Total	Bicarbonate	Chloride	Dissolved Oxygen	Fluoride	N as Nitrate ²	N as Nitrite	N as Nitrate + Nitrite	Sulfate
	Analytical Method ¹	E310.1	E310.1	E300.0/ SW9056	Field	E300.0/ E340.2/ SW9056	E300.0/ E353.2/ SW9056	E300.0/ E353.2/ SW9056	E353.2	E300.0/ SW9056
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
637-34 (A1 Zone) DUP0828013B	11/27/01	410	410	110	0.5	0.32	< 0.05	< 0.05	NA	290
	08/28/01	480	480	120	3.4	0.36	< 0.05	< 0.05	NA	610
	08/28/01	460	460	120	-	0.34	< 0.05	< 0.05	NA	610
	05/17/01	480	480	240	3.49	0.46	< 0.05	< 0.05	NA	1000
	06/23/00	NA	NA	NA	1.31	NA	NA	NA	NA	NA
637-35 (A1 Zone)	03/11/03	800	800	730	1.0	< 0.2	< 0.1	< 0.1	NA	1200
	12/03/02	750	750	720	0.4	< 0.5	< 0.25	< 0.25	NA	1300
	09/03/02	850	850	900	0.3	0.24	< 0.05	< 0.05	NA	980
	06/03/02	800	800	720	0.3	0.13 J	0.12	< 0.1	NA	1,200
	03/05/02	730	730	810	0.6	0.28	< 0.05	< 0.05	NA	1,300
	11/27/01	660	660	620	2.2	0.38	< 0.1	< 0.1	NA	1,400
	08/28/01	740	740	870	4	0.14	< 0.05	< 5	NA	1,300
	05/17/01	770	770	650	1.99	0.19	< 0.05	< 0.05	NA	1,900
	06/23/00	NA	NA	NA	2.18	NA	NA	NA	NA	NA
	06/04/03	790	790	330	0.5	< 0.5	< 0.25	< 0.25	NA	1600
637-36 (A1 Zone)	03/11/03	720	720	260	1.0	< 0.2	< 0.1	< 0.1	NA	1300
	12/03/02	670	670	240	0.3	< 0.2	< 0.1	< 0.1	NA	1,300
	09/03/02	750	750	420	0.4	0.29	< 0.1	< 0.1	NA	1,400
	06/03/02	780	780	600	0.3	< 0.5	< 0.25	< 0.25	NA	1,600
	03/05/02	730	730	650	0.6	0.17	< 0.05	< 0.05	NA	1,400
	11/27/01	610	610	190	1.5	0.26	< 0.1	< 0.1	NA	720
	08/29/01	600	600	260	1.9	0.13	< 0.05	< 0.05	NA	910
	05/17/01	700	700	540	3	0.34	< 0.05	< 0.05	NA	1,100

Table A-5-3
Results of General Chemistry Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Alkalinity Total	Bicarbonate	Chloride	Dissolved Oxygen	Fluoride	N as Nitrate ²	N as Nitrite	N as Nitrate + Nitrite	Sulfate
	Analytical Method ¹	E310.1	E310.1	E300.0/ SW9056	Field	E300.0/ E340.2/ SW9056	E300.0/ E353.2/ SW9056	E300.0/ E353.2/ SW9056	E353.2	E300.0/ SW9056
637-37 (A1 Zone)		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
	03/11/03	730	730	120	1.0	0.19	< 0.05	< 0.05	NA	150
	12/03/02	530	530	75	0.8	0.19	< 0.05	< 0.05	NA	55
	09/03/02	700	700	83	0.4	0.28	< 0.05	< 0.05	NA	130
	06/03/02	660	660	100	0.2	0.31	< 0.05	< 0.05	NA	110
	05/17/01	390	390	99	2.7	0.24	< 0.05	< 0.05	NA	670
637-38 (A1 Zone)	06/23/00	NA	NA	NA	7.08	NA	NA	NA	NA	NA
	03/11/03	300	300	30	0.6	0.27	< 0.05	< 0.05	NA	15
	03/11/03	220	220	29	NA	0.28	< 0.05	< 0.05	NA	16
	03/11/03	220	220	36	NA	0.35 J-	< 0.1	< 0.05 UJ	< 0.05	15
	12/09/02	450	450	110	0.8	0.22	< 0.05	< 0.05	NA	51
	12/09/02	450	450	110	--	0.21	< 0.05	< 0.05	NA	50
DUP1209022B 637-38CL	12/09/02	440	440	110	--	0.29	< 0.1 UJ	< 0.05 UJ	< 0.05 UJ	51
	08/29/02	580	580	100	0.9	0.24	< 0.25	< 0.25	NA	2
	05/29/02	540	540	82	0.5	0.28	< 0.05	< 0.05	NA	3.7
	05/29/02	540	540	82	--	0.25	< 0.05	< 0.05	NA	4.1
	05/29/02	540	540	78	--	< 1	< 1	< 1	NA	4
	03/05/02	130	130	20	0.6	0.32	< 0.05	< 0.05	NA	41
DUP0529022A 637-38CL	12/03/01	98	98	11	1.2	0.65	< 0.05 UJ	< 0.05 UJ	NA	9.9
	08/28/01	560	560	87	1	0.33	< 0.05	< 0.05	NA	0.83
	05/15/01	200	200	25	1.2	0.43	< 0.05 UJ	< 0.05 UJ	NA	14
	06/23/00	NA	NA	NA	2.39	NA	NA	NA	NA	NA

Table A-5-3
Results of General Chemistry Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Alkalinity Total	Bicarbonate	Chloride	Dissolved Oxygen	Fluoride	N as Nitrate ²	N as Nitrite	N as Nitrate + Nitrite	Sulfate
	Analytical Method ¹	E310.1	E310.1	E300.0/ SW9056	Field	E300.0/ E340.2/ SW9056	E300.0/ E353.2/ SW9056	E300.0/ E353.2/ SW9056	E353.2	E300.0/ SW9056
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
637-39R (A1 Zone)	03/12/03	610	610	86	0.2	0.2	< 0.05	< 0.05	NA	14
	12/03/02	490	490	81	1.2	0.22	< 0.05	< 0.05	NA	18
	08/29/02	510	510	92	1.7	0.27	< 0.25	< 0.25	NA	29
	05/29/02	470	470	84	0.7	0.3	< 0.05	< 0.05	NA	45
	03/05/02	400	400	91	0.7	0.25	0.27	< 0.05	NA	170
	12/03/01	410	410	91	0.8	0.29	1.4 J	0.009 J, J	NA	120
	08/28/01	530	530	83	0.40	0.35	< 0.05	< 0.05	NA	12
	03/11/03	NA	NA	NA	0.4	NA	NA	NA	NA	NA
637-40 (A2 Zone)	12/03/02	440	440	97	0.5	0.49	< 0.05	< 0.05	NA	28
	08/29/02	410	410	86	1.2	0.34	< 0.25	< 0.25	NA	29
	05/29/02	370	370	83	0.7	0.48	0.08	< 0.05	NA	28
	03/05/02	360	360	83	0.6	0.48	< 0.05 UJ	< 0.05 UJ	NA	44
	12/03/01	170	170	63	2	0.71	0.03 J, J	< 0.05 UJ	NA	79
	08/28/01	370	370	72	0.7	0.66	0.12	< 0.05	NA	33
	05/15/01	370	370	78	2.7	0.47	< 0.05 UJ	< 0.05 UJ	NA	29
	05/15/01	360	360	81	--	< 1	< 1	< 1	NA	34
637-40CL LF07GW11 (A1 Zone) DUP0903021A LF07GW11CL	12/03/02	470	470	120	0.2	0.22	< 0.05	< 0.05	NA	470
	09/03/02	400	400	61	0.5	0.5	< 0.05	< 0.05	NA	95
	09/03/02	420	420	61	--	0.48	< 0.05	< 0.05	NA	97
	09/03/02	420	420	65	--	< 1	< 1	< 1	NA	100
	06/03/02	450	450	90	0.2	0.37	< 0.05	< 0.05	NA	450
	03/05/02	430	430	160	0.9	0.36	< 0.05	< 0.05	NA	1,000
	11/27/01	360	360	380	0.6	0.24	< 0.1 UJ	< 0.1 UJ	NA	1,600
	08/28/01	370	370	89	1.3	0.45	< 0.05	< 0.05	NA	310

Table A-5-3
Results of General Chemistry Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Alkalinity Total	Bicarbonate	Chloride	Dissolved Oxygen	Fluoride	N as Nitrate ²	N as Nitrite	N as Nitrate + Nitrite	Sulfate
	Analytical Method ¹	E310.1	E310.1	E300.0/ SW9056	Field	E300.0/ E340.2/ SW9056	E300.0/ E353.2/ SW9056	E300.0/ E353.2/ SW9056	E353.2	E300.0/ SW9056
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
LF07/GW11 (A1 Zone)	05/17/01	510	510	120	2.52	0.5	< 0.05	< 0.05	NA	870
	02/11/00	NA	NA	NA	0.72	NA	NA	NA	NA	NA
	07/07/00	NA	NA	NA	12.8	NA	NA	NA	NA	NA
	04/29/99	NA	NA	NA	0.19	NA	NA	NA	NA	NA
	02/01/99	NA	NA	NA	0.23	NA	NA	NA	NA	NA
	10/29/98	553	553	87	0.44	NA	0.18	NA	NA	1.8
	07/30/98	490	490	67	0.23	NA	< 0.4	NA	NA	< 5
	05/11/98	384	384	44	0.09	NA	0.692	NA	NA	18.9
	02/10/98	442	442	58	0.74	NA	0.094	NA	NA	3.56
	10/14/97	495	495	70	0.28	NA	< 0.01	NA	NA	< 0.15
	07/17/97	477	477	81	0.28	NA	0.016	NA	0.099	0.104
	04/10/97	590	590	84	0.24	NA	< 0.01	NA	NA	0.702
	01/23/97	570	570	75	0.69	NA	0.03	NA	< 0.05	1.03
	10/17/96	520	520	82	0.13	0.509	NA	NA	0.12	< 1
	07/24/96	592	592	90	0.06	0.83	NA	NA	0.05	< 1
	05/08/96	534	534	89	0.1	0.53	NA	NA	< 0.05	< 1

Table A-5-3
Results of General Chemistry Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Alkalinity Total	Bicarbonate	Chloride	Dissolved Oxygen	Fluoride	N as Nitrate ²	N as Nitrite	N as Nitrate + Nitrite	Sulfate
	Analytical Method ¹	E310.1	E310.1	E300.0/ SW9056	Field	E300.0/ E340.2/ SW9056	E300.0/ E353.2/ SW9056	E300.0/ E353.2/ SW9056	E353.2	E300.0/ SW9056
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
LF07GW11	02/22/96	501	501	60	0.5	0.27	NA	NA	0.19	5.4
(A1 Zone)	11/16/95	514	514	99	NM	0.48	NA	NA	0.05	1.5

Notes

1 - The identified analytical method(s) are for analyses performed beginning in the Second Quarter 2001. The analytical methods used during previous quarters are identified in the respective quarterly reports.

2 - N as nitrite analyzed prior to 05/17/01 includes N as nitrate analysis.

mg/L - milligrams per liter

NA - not analyzed

NM - not measured

"_" dissolved oxygen measurements were not taken for duplicate and quality control samples.

"CL" suffix denotes a quality control duplicate sample was sent to the control laboratory.

Table 7 in the main report identifies all duplicate and split samples and associates them with the well from which they were collected.

Table 11 in the main report identifies current and historic data qualifiers.

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Table A-5-4
Results of TPH, BTEX, and MTBE Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	TPH as Gasoline (Carbon Range C7-C12)	TPH as Diesel (Carbon Range C12-C24)	TPH as Fuel Oil ² (Carbon Range C24-C36)
	Analytical Method ¹	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8015B/ SW8015M	SW8015B/ SW8015M	SW8015B/ SW8015M
	Cleanup Level	(µg/L) 650	(µg/L) 2,100	(µg/L) 1,000	(µg/L) 232,000	(µg/L) -	(µg/L) 13,000	(µg/L) 15,000	(µg/L) 21,000
637-01R (A2 Zone) DUP0829022B	12/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	08/29/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	89	NA	NA
	08/29/02	< 0.5	< 0.5	< 0.5	0.9	< 2	100	NA	NA
	05/29/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
DUP0305023B	03/05/02	< 0.5	< 0.5	< 0.5	0.53	7	130	NA	NA
	03/05/02	< 0.5	< 0.5	< 0.5	0.53	10	130	NA	NA
	12/03/01	< 0.5	< 0.5	< 0.5	0.65	< 2	150	NA	NA
	12/03/01	< 0.5	< 0.5	< 0.5	0.72	< 2	150	NA	NA
DUP1203012A 637-01RCL	12/03/01	< 0.5	< 0.5	< 0.5	< 0.5	< 5	190	NA	NA
	08/28/01	< 0.5	< 0.5	< 0.5	0.73	13 C	190	NA	NA
	05/15/01	< 0.5	< 0.5	< 0.5	0.78	2.8	170	NA	NA
	06/26/00	< 0.5	< 0.5	< 0.5	< 1	NA	55	NA	NA
	05/06/99	0.91	< 0.5	< 0.5	< 0.5	NA	130 (J25)	< 50	< 300
	02/04/99	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	< 50	< 300
	11/04/98	< 0.5	< 0.5	< 0.5	< 0.5	NA	130 (J25)	< 50	< 300
	08/03/98	3 (J18)	< 0.5 (U18)	< 0.5 (U18)	0.71 (J18)	NA	240 (J18, J25)	< 50	< 300
	05/07/98	5.5	< 0.5	< 0.5	< 0.5	NA	63 (J25)	< 50	< 300
	02/09/98	0.93	< 0.5	< 0.5	0.58	NA	88 (J25)	< 50	< 300
	10/13/97	< 0.5	< 0.5	< 0.5	0.85	NA	160 (J25)	< 50	< 300
	07/17/97	5.6 (J5)	< 0.5	< 0.5	1.6 (J5)	NA	330 (J25)	< 50	< 300
	04/09/97	0.41 (J5, J28)	< 0.5	< 0.5	0.69 (J5)	NA	160 (J25)	< 50	< 300
	01/23/97	7.1 (J5)	< 0.5	< 0.5	1.9 (J5)	NA	240 (J25)	< 50	< 300
	10/23/96	74	1.2	< 0.5	2.3	NA	300 (J25)	< 50	< 300 (U12)

Table A-5-4
Results of TPH, BTEX, and MTBE Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	TPH as Gasoloe (Carbon Range C7-C12)	TPH as Diesel (Carbon Range C12-C24)	TPH as Fuel Oil ² (Carbon Range C24-C36)
	Analytical Method ¹	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8015B/ SW8015M	SW8015B/ SW8015M	SW8015B/ SW8015M
	Cleanup Level	(µg/L) 650	(µg/L) 2,100	(µg/L) 1,000	(µg/L) 232,000	(µg/L) --	(µg/L) 13,000	(µg/L) 15,000	(µg/L) 21,000
637-01R (A2 Zone)	07/29/96	10	< 0.5	< 0.5	0.72	NA	96 (J25)	< 50	< 300
	05/15/96	4.5	< 0.5	< 0.5	1.3	< 5	150 (J25)	< 50	< 300
	02/29/96	48	0.78	< 0.5	5.1	NA	160 (J25)	< 50	< 300
	12/08/95	35	< 0.78 (U2)	< 0.5	4.8	NA	390 (J25)	< 50	< 300
	08/28/95	990	< 50	< 50	< 50	NA	4,900 (J25)	87 (J25)	< 300
	05/19/95	1,100	< 100	< 100	< 100	NA	4,400 (J25)	250 (J25)	NA
	02/23/95	1,300	< 50	< 50	< 50	NA	840 (J25)	180 (J25)	NA
	12/07/94	< 5	< 5	< 5	< 5	NA	< 50	75 (J25)	NA
	08/30/94	480	< 25	< 25	< 25	NA	280 (J25)	140 (J25)	NA
	05/24/94	1,100	< 50	< 50	< 50	NA	500 (J25)	98 (J25)	NA
637-19 (A2 Zone)	02/11/94	390	< 5	< 5	8.8	NA	470 (J25)	210 (J25)	NA
	12/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	09/03/02	< 0.5	< 0.5	< 0.5	< 0.5	2.7	< 50	NA	NA
	06/03/02	< 0.5	< 0.5	< 0.5	< 0.5	2.4	< 50	NA	NA
	03/05/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	11/27/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	08/28/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	05/17/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	05/03/99	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	52	NA
	02/01/99	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	< 50 (U12)	NA
	10/29/98	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	< 50	NA
	07/30/98	< 0.5 (U18)	< 0.5 (U18)	< 0.5 (U18)	< 0.5 (U18)	NA	< 50 (U18)	61	NA

Table A-5-4
Results of TPH, BTEX, and MTBE Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	TPH as Gasoline (Carbon Range C7-C12)	TPH as Diesel (Carbon Range C12-C24)	TPH as Fuel Oil ² (Carbon Range C24-C36)
	Analytical Method ¹	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8015B/ SW8015M	SW8015B/ SW8015M	SW8015B/ SW8015M
	Cleanup Level	(µg/L) 650	(µg/L) 2,100	(µg/L) 1,000	(µg/L) 232,000	(µg/L) -	(µg/L) 13,000	(µg/L) 15,000	(µg/L) 21,000
637-19 (A2 Zone)	05/11/98	< 0.5	< 0.5	< 0.5	< 0.5	NA	150	270	NA
	02/05/98	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	480	NA
	10/09/97	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	76 (R32)	< 300
	07/15/97	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	< 50	< 300
	04/08/97	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	< 50	310
	01/22/97	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	< 50	< 300
	10/22/96	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	< 50	< 300
	07/26/96	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	< 50	< 300
	05/14/96	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	< 50	< 300
	02/27/96	< 0.5	< 0.5	< 0.5	< 0.5	< 5	< 50	< 50	< 300
	12/07/95	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	< 50	310 (J25, J32)
	08/25/95	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	< 50	< 300
	05/18/95	< 5	< 5	< 5	< 5	NA	< 50	< 50	< 300
	02/22/95	< 5	< 5	< 5	< 5	NA	< 50	480 (J25)	NA
	11/30/94	< 5	< 5	< 5	< 5	NA	150 (J25)	270 (J25)	NA
	08/29/94	< 5	< 5	< 5	< 5	NA	< 50	61 (J25)	NA
	05/19/94	2.2 (J28)	< 5	< 5	< 5	NA	< 50	< 50	NA
	02/15/94	< 5	< 5	< 5	< 5	NA	< 50	290 (J25)	NA
							< 50	52 (J25)	NA

Table A-5-4
Results of TPH, BTEX, and MTBE Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TPH as Gasoline (Carbon Range C7-C12) (µg/L)	TPH as Diesel (Carbon Range C12-C24) (µg/L)	TPH as Fuel Oil ² (Carbon Range C24-C36) (µg/L)
	Analytical Method ¹	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8015B/ SW8015M	SW8015B/ SW8015M	SW8015B/ SW8015M
	Cleanup Level	650	2,100	1,000	232,000	—	13,000	15,000	21,000
637-26 (A1 Zone) DUP1205021A	12/05/02	< 0.5	< 0.5	< 0.5	1.9	2.3	390 Y	NA	NA
	12/05/02	< 0.5	< 0.5	< 0.5	1	< 2	360 Y	NA	NA
	08/29/02	< 0.5	< 0.5	< 0.5	0.53	< 2	64	NA	NA
	05/29/02	< 0.5	< 0.5	< 0.5	0.53	< 2	64	NA	NA
	03/11/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	12/03/01	1.6	5.6	2.4	4.9	2.7	620	NA	NA
	08/29/01	< 0.5	1.6	0.57	1.58	2.8	280	NA	NA
	05/14/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2 UJ	59	NA	NA
	06/26/00	< 0.5	0.18 (J18)	< 0.5	0.29 (J28)	NA	52	NA	NA
	04/28/99	< 0.5	< 0.5	< 0.5	< 0.5	NA	510 (J25)	720 (J25)	< 300
	01/28/99	< 0.5	< 0.5	< 0.5	< 0.5	NA	740 (J25)	140 (J25)	< 300
	10/28/98	< 2.5	< 2.5	< 2.5	< 2.5	NA	1100 (J25)	180 (J25)	< 300
	07/29/98	< 0.5 (U18)	0.66 (J5, J18)	< 0.5 (U18)	0.62 (J5, J18)	NA	1100 (J25)	80 (J25)	< 300
	05/06/98	< 0.5	1.4 (J5)	< 0.5	< 0.5	NA	2,100 (J5, J25)	180 (J25)	< 300
	02/10/98	< 0.5	< 0.5	< 0.5	< 0.5	NA	410 (J25)	< 50	< 300
	10/14/97	< 0.5	0.61	< 0.5	0.62	NA	2,100 (J25)	380 (J25)	< 300
	07/17/97	< 0.5	< 0.5	< 0.5	< 0.5	NA	670 (J5, J25)	200 (J25)	< 300
	04/10/97	< 0.5	< 0.5	< 0.5	< 0.5	NA	620 (J25)	150 (J25)	< 300
	01/24/97	< 0.5	< 0.5	< 0.5	< 0.5	NA	1,000 (J25)	100 (J25)	< 300

Table A-5-4
Results of TPH, BTX, and MTBE Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	TPH as Gasoline (Carbon Range C7-C12)	TPH as Diesel (Carbon Range C12-C24)	TPH as Fuel Oil ² (Carbon Range C24-C36)
	Analytical Method ¹	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8015B/ SW8015M	SW8015B/ SW8015M	SW8015B/ SW8015M
	Cleanup Level	(µg/L) 650	(µg/L) 2,100	(µg/L) 1,000	(µg/L) 232,000	(µg/L) —	(µg/L) 13,000	(µg/L) 15,000	(µg/L) 21,000
637-26 (A1 Zone)	10/24/96	< 6.2	< 6.2	< 6.2	< 6.2	NA	2,400 (J25)	230 (J25)	< 300 (U12)
	07/30/96	< 0.5	1 (J5)	< 0.5	< 0.5	NA	1,200 (J25)	590 (J25)	< 300
	05/16/96	52	< 2.5	< 2.5	< 2.5	< 25	1,600 (J25)	580 (J25)	< 300
	03/01/96	190	< 5	< 5	< 5	NA	2,400 (J25)	180 (J25)	< 300 (U6)
	12/08/95	3.3	< 2.5	< 2.5	< 2.5	NA	3,700 (J25)	780 (J25)	< 300
637-27 (A1 Zone)	12/05/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	08/29/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	05/29/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	03/11/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	11/27/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	08/29/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	05/14/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2 UJ	< 50	NA	NA
	05/03/99	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	130 (J25)	< 300
	02/01/99	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	< 50 (U12)	< 300
	10/29/98	< 0.5	< 0.5	< 0.5	< 0.5	NA	68 (J25)	< 50	< 300
	07/30/98	0.23 (J18, J28)	< 0.5 (U18)	< 0.5 (U18)	< 0.5 (U18)	NA	100 (J25)	< 50	< 300
	05/11/98	< 0.5	< 0.5	< 0.5	< 0.5	NA	120 (J7, J25)	< 50	< 300
	02/05/98	0.74	< 0.5	< 0.5	0.5	NA	150 (J25)	< 50	< 300
	10/09/97	1.4	< 0.5	< 0.5	< 0.5	NA	150 (J25)	120 (R32)	< 300
	07/15/97	0.49 (J5, J28)	< 0.5	< 0.5	< 0.5	NA	130 (J25)	66 (J25)	< 300
	04/08/97	< 0.5	< 0.5	< 0.5	< 0.5	NA	280 (J25)	66 (J25)	< 300
	01/22/97	< 0.5	< 0.5	< 0.5	< 0.5	NA	260 (J5, J25)	110 (J25)	< 300

Table A-5-4
Results of TPH, BTEX, and MTBE Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	TPH as Gasoline (Carbon Range C7-C12)	TPH as Diesel (Carbon Range C12-C24)	TPH as Fuel Oil ² (Carbon Range C24-C36)
	Analytical Method ¹	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8015B/ SW8015M	SW8015B/ SW8015M	SW8015B/ SW8015M
	Cleanup Level	(µg/L) 650	(µg/L) 2,100	(µg/L) 1,000	(µg/L) 232,000	(µg/L) —	(µg/L) 13,000	(µg/L) 15,000	(µg/L) 21,000
637-27 (A1 Zone)	10/23/96	< 2.5	< 2.5	< 2.5	< 2.5	NA	1,000 (J25)	55 (J25)	< 300 (U12)
	07/29/96	< 0.5	< 0.5	< 0.5	0.54	NA	460 (J25)	86	< 300
	05/15/96	< 2.5	< 2.5	< 2.5	< 2.5	< 25	890 (J25)	120 (J25)	< 300
	02/29/96	< 0.5	< 0.5	< 0.5	< 0.5	NA	530 (J25)	< 50	< 300
	12/08/95	< 0.5	< 0.5	< 0.5	< 0.5	NA	540 (J25)	< 50	< 300
637-33 (A2 Zone)	12/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	09/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	06/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	03/05/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	11/27/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
DUP0828013A	08/28/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	08/28/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
DUP0517013A	05/17/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	05/17/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	05/04/99	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	02/02/99	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	< 50	< 300
	11/02/98	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	< 50 (U12)	< 300
	08/03/98	< 0.5 (U18)	< 0.5 (U18)	< 0.5 (U18)	< 0.5 (U18)	NA	< 50 (U18)	< 50	< 300
	05/07/98	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	< 50	< 300
	03/05/98	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	< 50	< 300

Table A-5-4
Results of TPH, BTEX, and MTBE Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TPH as Gasoline (Carbon Range C7-C12) (µg/L)	TPH as Diesel (Carbon Range C12-C24) (µg/L)	TPH as Fuel Oil ² (Carbon Range C24-C36) (µg/L)
	Analytical Method ¹	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8015B/ SW8015M	SW8015B/ SW8015M	SW8015B/ SW8015M
	Cleanup Level	650	2,100	1,000	232,000	--	13,000	15,000	21,000
637-34 (A1 Zone)	03/11/03	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	12/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	09/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	06/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	03/05/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	11/27/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	08/28/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	08/28/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
DUP0828013B	05/17/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	06/23/00	< 0.5	< 0.5	< 0.5	< 1	NA	< 50	NA	NA
	03/11/03	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	12/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	09/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	06/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	03/05/02	< 0.5	< 0.5	< 0.5	0.63	< 2	< 50	NA	NA
	11/27/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
637-35 (A1 Zone)	08/28/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	05/17/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	06/23/00	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	03/11/03	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	12/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	09/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	06/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	03/05/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA

Table A-5-4
Results of TPH, BTEX, and MTBE Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	TPH as Gasoline (Carbon Range C7-C12)	TPH as Diesel (Carbon Range C12-C24)	TPH as Fuel Oil ² (Carbon Range C24-C36)
	Analytical Method ¹	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8015B/ SW8015M	SW8015B/ SW8015M	SW8015B/ SW8015M
	Cleanup Level	(µg/L) 650	(µg/L) 2,100	(µg/L) 1,000	(µg/L) 232,000	(µg/L) --	(µg/L) 13,000	(µg/L) 15,000	(µg/L) 21,000
637-36 (A1 Zone)	06/04/03	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	03/11/03	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	12/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	09/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	06/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	03/05/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	11/27/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	08/29/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	05/17/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	3/11/03	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
637-37 (A1 Zone)	12/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	09/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	06/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	03/05/02	NS	NS	NS	NS	NS	NS	NS	NS
	11/27/01	NS	NS	NS	NS	NS	NS	NS	NS
	08/28/01	NS	NS	NS	NS	NS	NS	NS	NS
	05/17/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	06/23/00	< 0.5	0.17 (J28)	< 0.5	< 1	NA	< 50	NA	NA
	03/11/03	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	< 50	< 300
	03/11/03	< 0.5	< 0.5	< 0.5	< 0.5	< 2.5	< 50	< 50 UJ	NA
DUP1209022B 637-38CL	12/09/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	< 50	< 300
	12/09/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	< 50	< 300
	12/09/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2.5	55	< 50	< 250
	12/09/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2.5	< 50	< 50	< 250

Table A-5-4
Results of TPH, BTEX, and MTBE Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	TPH as Gasoline (Carbon Range C7-C12)	TPH as Diesel (Carbon Range C12-C24)	TPH as Fuel Oil ² (Carbon Range C24-C36)
	Analytical Method ¹	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8015B/ SW8015M	SW8015B/ SW8015M	SW8015B/ SW8015M
	Cleanup Level	(µg/L) 650	(µg/L) 2,100	(µg/L) 1,000	(µg/L) 232,000	(µg/L) --	(µg/L) 13,000	(µg/L) 15,000	(µg/L) 21,000
637-38 (A1 Zone) DUP0529022A 637-38CL	08/29/02	< 0.5	4.8 C	< 0.5	1.2	< 2	280	< 50	NA
	05/29/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	< 50	< 300
	05/29/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	55	< 50	NA
	05/29/02	< 0.5	< 0.5	< 0.5	< 0.5	< 5	65 g	< 50 UJ	NA
	03/05/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	< 50	NA
	12/03/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	< 50	NA
	08/28/01	< 0.5	< 0.5	< 0.5	< 0.5	3.7	190	< 50	NA
	05/15/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	54	< 50	< 300
	06/23/00	< 0.5	< 2	< 0.5	0.68 (J28)	NA	320	NA	NA
	03/12/03	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	< 50	NA
637-39R (A1 Zone)	12/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	< 50	< 300
	08/29/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	< 50	NA
	05/29/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	< 50	< 300
	03/05/02	< 0.5	< 0.5	< 0.5	< 0.5	4.5	< 50	< 50	NA
	12/03/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	< 50	NA
	08/28/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	< 50	NA
	03/11/03	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	NA	NA
	12/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	08/29/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	05/29/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
637-40 (A2 Zone)	03/05/02	0.88	0.97	1.2	5.6	12	85	NA	NA

Table A-5-4
Results of TPH, BTEX, and MTBE Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	TPH as Gasoline (Carbon Range C7-C12)	TPH as Diesel (Carbon Range C12-C24)	TPH as Fuel Oil ² (Carbon Range C24-C36)
	Analytical Method ¹	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8015B/ SW8015M	SW8015B/ SW8015M	SW8015B/ SW8015M
	Cleanup Level	(µg/L) 650	(µg/L) 2,100	(µg/L) 1,000	(µg/L) 232,000	(µg/L) —	(µg/L) 13,000	(µg/L) 15,000	(µg/L) 21,000
637-40 (A2 Zone)	12/03/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	08/28/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	05/15/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA	NA
	05/15/01	< 1	< 1	< 1	< 1	< 5	< 50	NA	NA
LF07GW11 (A1 Zone) DUP0903021A LF07GW11CL	12/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	< 50	< 300
	09/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	< 50	NA
	09/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	< 50	NA
	09/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 5	< 50	< 50	NA
	06/03/02	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	< 50	< 300
	03/05/02	< 0.5	0.52	< 0.5	0.73	< 2	< 50	< 50	NA
	11/27/01	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	NA
	08/28/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	< 50	NA
LF07GW11CL	05/17/01	< 0.5	< 0.5	< 0.5	< 0.5	< 2	< 50	< 50	< 300
	05/17/01	< 0.5	< 0.5	< 0.5	< 0.5	< 5	< 50	< 50	NA
	02/09/00	2.6	0.7	< 0.5	< 0.5	< 0.5	240	NA	NA
	07/07/00	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 50	NA	NA
	04/29/99	< 0.5	< 0.5	< 0.5	< 0.5	NA	66	90	< 300
	02/01/99	< 0.5	< 0.5	< 0.5	< 0.5	NA	110	< 50	< 300
	10/29/98	< 0.5	< 0.5	< 0.5	< 0.5	NA	67	< 50	< 300
	07/30/98	< 0.5	< 0.5	< 0.5	< 0.5	NA	120	< 50	< 300
	05/11/98	0.49	< 0.5	< 0.5	1.3	NA	300	< 50	< 300
	02/10/98	0.34	< 0.5	< 0.5	1.5	NA	350	< 50	< 300

Table A-5-4
Results of TPH, BTEX, and MTBE Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	TPH as Gasoline (Carbon Range C7-C12)	TPH as Diesel (Carbon Range C12-C24)	TPH as Fuel Oil ² (Carbon Range C24-C36)
	Analytical Method ¹	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8020/ SW8021/ SW8021B/ SW8260M	SW8015B/ SW8015M	SW8015B/ SW8015M	SW8015B/ SW8015M
	Cleanup Level	(µg/L) 650	(µg/L) 2,100	(µg/L) 1,000	(µg/L) 232,000	(µg/L) -	(µg/L) 13,000	(µg/L) 15,000	(µg/L) 21,000
LF07GW11 (A1 Zone)	10/14/97	< 0.5	< 0.5	< 0.5	0.73	NA	280	74	< 300
	07/17/97	0.29	< 0.5	< 0.5	1.8	NA	400	83	< 300
	04/10/97	< 0.5	< 0.5	< 0.5	< 0.5	NA	82	< 50	< 300
	01/23/97	0.51	< 0.5	< 0.5	0.83	NA	< 50	< 50	< 300
	10/17/96	0.28	0.54	< 0.5	< 0.5	NA	150	< 50	< 300
	07/24/96	< 0.5	< 0.5	< 0.5	< 0.5	NA	73	< 50	< 300
	05/08/96	< 0.5	< 0.5	< 0.5	< 0.5	NA	100	< 50	< 300
LF07GW11CL	02/22/96	3.6	0.91	< 0.5	1.3	NA	360	< 50	< 300
	11/16/95	2.4	1.4	< 0.5	2	NA	450	< 50	< 300

Notes

1 - The identified analytical method(s) are for analyses performed beginning in the Second Quarter 2001. The analytical methods used during previous quarters are identified in the respective quarterly reports.

2 - TPH as fuel oil uses a motor oil standard for carbon range (C24-C36).

µg/L - micrograms per liter

NA - not available for the August 2001 draft.

NS - not sampled

MTBE - methyl tertiary butyl ether

TPH - total petroleum hydrocarbon

"CL" suffix denotes a Quality Control Duplicate Sample was sent to the control laboratory.

Table 7 in the main report identifies all duplicate and split samples and associates them with the well from which they were collected.

Table 11 in the main report identifies current and historic data qualifiers.

Bold numbers indicate concentrations which exceed cleanup levels.

-- Cleanup level not established.

Table A-5-5
Results of VOC Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Volatile Organic Compounds (VOCs)									
		1,2-DCA (µg/L)	cis-1,2-DCE (µg/L)	1,2-DCE (cis- & trans-) (µg/L)	Acetone (µg/L)	Carbon Disulfide (µg/L)	Chloroform (µg/L)	Chloromethane (µg/L)	PCE (µg/L)	Vinyl Chloride (µg/L)	All Other VOCs (µg/L)
637-01R (A2 zone)	Analytical Method ¹	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M
	Unit	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
	Cleanup Level	0.5	6	—	—	—	—	—	—	0.5	—
	05/06/99	< 0.5	< 0.5	NA	NA	< 5	NA	< 0.5	< 0.5	< 0.5	ND
	02/04/99	< 0.5	< 0.5	NA	NA	< 5	NA	< 0.5	< 0.5	< 0.5	ND
	11/04/98	< 0.5	< 0.5	NA	NA	< 5	NA	< 0.5	< 0.5	< 0.5	ND
	08/03/98	< 0.5 (U18)	< 0.5 (U18)	NA	NA	< 5 (U18)	< 0.5 (U18)	< 0.5 (U18)	< 0.5	< 0.5 (U18)	ND
	05/07/98	< 0.5	< 0.5	NA	NA	< 5	< 0.5	< 0.5	< 0.5	< 0.5	ND
	02/09/98	< 0.5	< 0.5	NA	NA	< 5	< 0.5	< 0.5	< 0.5	< 0.5	ND
	10/13/97	< 0.5	< 0.5	NA	NA	< 5	< 0.5	< 0.5	< 0.5	< 0.5	ND
	07/17/97	< 0.5	< 0.5	NA	NA	< 5	< 0.5	< 0.5	< 0.5	< 0.5	ND
	04/09/97	< 0.5	< 0.5	NA	NA	< 5	< 0.5	< 0.5	< 0.5	< 0.5	ND
	01/23/97	< 0.5	< 0.5	NA	NA	< 5	< 0.5	< 0.5	< 0.5	< 0.5	ND
	10/23/96	< 0.5	< 0.5	NA	NA	< 5	< 0.5	< 0.5	< 0.5	< 0.5	ND
	07/29/96	< 0.5	NA	< 0.5	< 10	< 5	0.81	< 0.5	< 0.5	< 0.5	ND
	05/15/96	0.63	NA	< 0.5	< 10	< 5	< 0.5	< 0.5	< 0.5	< 0.5	ND
	02/29/96	< 0.5	NA	< 0.5	< 10	< 5	< 0.5	< 0.5	< 0.5	< 0.5	ND
	12/08/95	< 0.5	NA	< 0.5	< 10	< 5	< 0.5	< 0.5	< 0.78	< 0.5	ND
	08/28/95	< 50	NA	< 50	< 1000	< 500	< 50	< 50	< 50	< 50	ND
	05/19/95	< 100	NA	< 100	< 200	< 100	< 100	< 200	< 100	< 200	ND
	02/23/95	< 50	NA	< 50	< 100	< 50	< 50	< 100	< 50	< 100	ND
	12/07/94	< 5	NA	< 5	< 10	< 5	< 5	< 10	< 5	< 10	ND
	08/30/94	< 25	NA	< 25	< 50	< 25	< 25	< 50 R	< 25	< 50	ND
	05/24/94	< 50	NA	< 50	130	< 50	< 50	< 100	< 50	< 100	ND
	02/11/94	< 5	NA	< 5	< 10	< 5	< 5	< 10	< 5	< 10	ND

Table A-5-5
Results of VOC Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Volatile Organic Compounds (VOCs)									
		1,2-DCA	cis-1,2-DCE	1,2-DCE (cis- & trans-)	Acetone	Carbon Disulfide	Chloroform	Chloromethane	PCE	Vinyl Chloride	All Other VOCs
	Analytical Method ¹	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M
	Unit	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
	Cleanup Level	0.5	6	—	—	—	—	—	—	0.5	—
637-19 (A2 zone)	05/03/99	<0.5	<0.5	NA	NA	<5	<1	<0.5	<0.5	<0.5	ND
	02/01/99	<0.5	<0.5	NA	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
	10/29/98	<0.5	<0.5	NA	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
	07/30/98	<0.5 (U18)	<0.5 (U18)	NA	NA	<5 (U18)	<0.5 (U18)	<0.5 (U18)	<0.5	<0.5 (U18)	ND
	05/11/98	<0.5	<0.5	NA	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
	02/05/98	<0.5	<0.5	NA	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
	10/09/97	<0.5	<0.5	NA	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
	07/15/97	<0.5	<0.5	NA	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
	04/08/97	<0.5	<0.5	NA	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
	01/22/97	<0.5	<0.5	NA	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
	10/22/96	<0.5	<0.5	NA	<10	<5	<0.5	<0.5	<0.5	<0.5	ND
	07/26/96	<0.5	NA	<0.5	<10	11	<0.5	<0.5	<0.5	<0.5	ND
	05/14/96	<0.5	NA	<0.5	<10	<5	<0.5	<0.5	<0.5	<0.5	ND
	02/27/96	<0.5	NA	<0.5	<10	<5	<0.5	<0.5	<0.5	<0.5	ND
	12/07/95	<0.5	NA	<0.5	<10	<5	<0.5	<0.5	<0.5	<0.5	ND
	08/25/95	<0.5	NA	<0.5	<10	<5	<0.5	<0.5	<0.5	<0.5	ND
	05/18/95	<5	NA	<5	<10	<5	<5	<10	<5	<10	ND
	02/22/95	<5	NA	<5	<10	<5	<5	<10	<5	<10	ND
	11/30/94	<5	NA	<5	<10	<5	<5	<10	<5	<10	ND
	08/29/94	<5	NA	<5	<10	<5	<5	<10	<5	<10	ND
	05/19/94	<5	NA	<5	<10	<5	<5	<10	<5	<10	ND
	02/15/94	<5	NA	<5	<10	<5	<5	<10	<5	<10	ND

Table A-5-5
Results of VOC Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Volatile Organic Compounds (VOCs)									
		1,2-DCA	cis-1,2-DCE	1,2-DCE (cis- & trans-)	Acetone	Carbon Disulfide	Chloroform	Chloromethane	PCE	Vinyl Chloride	Air- Other VOCs
	Analytical Method ¹	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M
	Unit	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
	Cleanup Level	0.5	6	--	--	--	--	--	--	0.5	--
637-26 (A1 Zone)	04/28/99	< 0.5	< 0.5	NA	NA	< 5	< 1	< 0.5	< 0.5	< 0.5	ND
	01/28/99	< 0.5	< 0.5	NA	NA	< 5	< 0.5	< 0.5	< 0.5	< 0.5	ND
	10/28/98	< 2.5	< 2.5	NA	NA	< 25	< 2.5	< 2.5	< 2.5	< 2.5	ND
	07/29/98	< 0.5 (U18)	< 0.5 (U18)	NA	NA	< 5 (U18)	< 0.5 (U18)	0.59 (J5, J18)	< 0.5	< 0.5 (U18)	ND
	05/06/98	< 0.5	< 0.5	NA	NA	< 5	< 0.5	< 0.5	< 0.5	< 0.5	ND
	02/10/98	< 0.5	< 0.5	NA	NA	< 5	< 0.5	< 0.5	< 0.5	< 0.5	ND
	10/14/97	< 0.5	< 0.5	NA	NA	< 5	< 0.5	< 0.5	< 0.5	< 0.5	ND
	07/17/97	< 0.5	< 0.5	NA	NA	< 5	< 0.5	< 0.5	< 0.5	< 0.5	ND
	04/10/97	< 0.5	< 0.5	NA	NA	< 5	< 0.5	< 0.5	< 0.5	< 0.5	ND
	01/24/97	< 0.5	< 0.5	NA	NA	< 5	< 0.5	< 0.5	< 0.5	< 0.5	ND
	10/24/96	< 6.2	< 6.2	NA	< 120	< 62	< 6.2	< 6.2	< 6.2	< 6.2	ND
	07/30/96	< 0.5	NA	< 0.5	< 10	< 5	< 0.5	< 0.5	< 0.5	< 0.5	ND
637-27 (A1 Zone)	05/16/96	< 2.5	NA	< 2.5	< 50	< 25	< 2.5	< 2.5	< 2.5	< 2.5	ND
	03/01/96	< 5	NA	< 5	< 100	< 50	< 5	< 5	< 5	< 5	ND
	12/08/95	< 2.5	NA	< 2.5	< 50	< 25	< 2.5	< 2.5	< 2.5	< 2.5	ND
	05/03/99	< 0.5	< 0.5	NA	NA	< 5	< 1	< 0.5	< 0.5	< 0.5	ND
	02/01/99	< 0.5	< 0.5	NA	NA	< 5	< 0.5	< 0.5	< 0.5	< 0.5	ND
	10/29/98	< 0.5	< 0.5	NA	NA	< 5	< 0.5	< 0.5	< 0.5	< 0.5	ND
	07/30/98	< 0.5 (U18)	< 0.5 (U18)	NA	NA	< 5 (U18)	< 0.5 (U18)	0.54 (J18)	< 0.5	< 0.5 (U18)	ND
	05/11/98	< 0.5	< 0.5	NA	NA	< 5	< 0.5	< 0.5	< 0.5	0.86	ND
	02/05/98	< 0.5	< 0.5	NA	NA	< 5	< 0.5	< 0.5	< 0.5	< 0.5	ND
	10/09/97	< 0.5	13	NA	NA	< 5	< 0.5	< 0.5	< 0.5	4.5	ND

Table A-5-5
Results of VOC Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Volatile Organic Compounds (VOCs)									
		1,2-DCA	cis-1,2-DCE	1,2-DCE (cis- & trans-)	Acetone	Carbon Disulfide	Chloroform	Chloromethane	PCE	Vinyl Chloride	All Other VOCs
637-27 (A1 Zone)	Analytical Method 1	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M
	Unit	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
	Cleanup Level	0.5	6	--	--	--	--	--	--	0.5	--
	07/15/97	<0.5	10 (J5)	NA	NA	<5	<0.5	<0.5	<0.5	2.4 (J5)	ND
	04/08/97	<0.5	<0.5	NA	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
	01/22/97	<0.5	<0.5	NA	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
	10/23/96	<2.5	<2.5	NA	<50	<25	<2.5	<2.5	<2.5	<2.5	ND
	07/29/96	<0.5	NA	<0.5	<10	<5	<0.5	<0.5	<0.5	<0.5	ND
	05/15/96	<2.5	NA	<2.5	<50	<25	<2.5	<2.5	<2.5	<2.5	ND
	02/29/96	<0.5	NA	<0.5	<10	<5	<0.5	<0.5	<0.5	<0.5	ND
637-33 (A2 Zone)	12/08/95	<0.5	NA	<0.5	<10	<5	<0.5	<0.5	<0.5	<0.5	ND
	05/04/99	<0.5	<0.5	NA	NA	<5	<1	<0.5	<0.5	<0.5	ND
	02/02/99	<0.5	<0.5	NA	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
	11/02/98	<0.5	<0.5	NA	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
	08/03/98	<0.5 (U18)	<0.5 (U18)	NA	NA	<5 (U18)	<0.5 (U18)	<0.5 (U18)	<0.5	<0.5 (U18)	ND
	05/07/98	<0.5	<0.5	NA	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
	03/05/98	<0.5	<0.5	NA	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
637-40 (A2 Zone)	03/11/03	<0.5	<0.5	NA	<10	<0.5	<0.5	<1	<0.5	<0.5	ND
	03/05/02	<0.5	0.6	NA	20 J-	<0.5	<0.5	<1	1.7	<0.5	ND
	05/15/01	<0.5	0.9	NA	<10	3	<0.5	<1	<0.5	1.1	ND
	05/15/01	<1	<1	NA	<50	<5	<1	<1	<1	<1	ND
LF07GW11 (A1 Zone)	07/07/00	<0.5	<0.5	<0.5	NA	<5	<1	<0.5	<0.5	<0.5	ND
	04/29/99	<0.5	<0.5	<0.5	NA	<5	<1	<0.5	<0.5	<0.5	ND
	02/01/99	<0.5	<0.5	<0.5	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
	10/29/98	<0.5	<0.5	<0.5	NA	<5	<0.5	<0.5	<0.5	<0.5	ND

Table A-5-5
Results of VOC Analyses
Building 637 Area
Presidio of San Francisco, California

Well Name (water-bearing zone)	Sample Date	Volatile Organic Compounds (VOCs)									
		1,2-DCA	cis-1,2-DCE	1,2-DCE (cis- & trans-)	Acetone	Carbon Disulfide	Chloroform	Chloromethane	PCE	Vinyl Chloride	All Other VOCs
	Analytical Method ¹	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M	SW8260B/ SW8260M
	Unit	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
	Cleanup Level	0.5	6	--	--	--	--	--	--	0.5	--
LF07GW11 (A1 Zone)	07/30/98	<0.5	<0.5	<0.5	NA	<5	<0.5	0.87	<0.5	<0.5	ND
	05/11/98	<0.5	<0.5	<0.5	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
	02/10/98	<0.5	<0.5	<0.5	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
	10/14/97	<0.5	<0.5	<0.5	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
	07/17/97	<0.5	<0.5	<0.5	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
	04/10/97	<0.5	<0.5	<0.5	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
	01/23/97	<0.5	<0.5	NA	NA	<5	<0.5	<0.5	<0.5	<0.5	ND
	10/17/96	<0.5	<0.5	NA	<10	<5	<0.5	<0.5	<0.5	<0.5	ND
	07/24/96	<0.5	NA	<0.5	<10	<5	<0.5	<0.5	<0.5	<0.5	ND
	05/08/96	<0.5	NA	<0.5	<10	<5	<0.5	<0.5	<0.5	<0.5	ND
	02/22/96	<0.5	NA	<0.5	<10	<5	<0.5	<0.5	<0.5	<0.5	ND
	11/16/95	0.62	NA	<0.5	<10	<5	0.8	<0.5	<0.5	<0.5	ND

Notes

1 - The identified analytical method(s) are for analyses performed beginning in the Second Quarter 2001. The analytical methods used during previous quarters are identified in the respective quarterly reports.

µg/L - micrograms per liter

ND - not detected

VOC - volatile organic compound

MTBE - methyl tertiary butyl ether

PCE - Tetrachloroethene

1,2-DCA - 1,2-dichloroethane

Cis-1,2-DCE - Cis-1,2-dichloroethene

(Cis- & trans)-1,2-DCE - total cis & trans-1,2-dichloroethene

(m&p)-Xylenes - meta and para xylenes (sum)

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First and Second Quarters 2003

Total Xylenes - meta, para, and ortho xylenes (sum)

"CL" suffix denotes a quality control duplicate sample was sent to the control laboratory.

Table 7 in the main report identifies all duplicate and split samples and associates them with the well from which they were collected.

Table 11 in the main report identifies current and historic data qualifiers.

Bold numbers indicate concentrations which exceed cleanup levels.

-- Cleanup level not established.

Table J-1

**Baseline Sampling
Building 637 Area Monitoring Wells**

	Well 637-38		Well 637-26		Well LF07GW11	
Date of Sampling	4/1/99 ¹	2/9/00	4/1/99 ¹	2/9/00	4/1/99 ¹	2/9/00
Sampling Method	conventional	low-flow	conventional	low flow	conventional	low flow
TPH-gasoline	new well	250 ug/l	510 ug/l	160 ug/l	66 ug/l	240 ug/l
MTBE	na	6.1	na	<0.50	na	<0.50
Benzene	na	< 0.50	<0.50	<0.50	<0.50	2.6
Toluene	na	1.5	<0.50	1.3	<0.50	0.7
Ethylbenzene	na	0.52	<0.50	<0.50	<0.50	<0.50
m.p Xylenes	na	<0.50	<0.50	<0.50	<0.50	<0.50
O Xylenes	na	<0.50	<0.50	<0.50	<0.50	<0.50

Notes

1) April 1999 results reported in *Building 637 Area January 1999 - October 1999 Monitoring Reports*, Volume 2, prepared by Montgomery Watson.

2) na - not applicable

TR Rev. 7/97

SAMPLE ID: 637-39

CLIENT NAME: SF President Trust

SAMPLED BY: S. GARCIA, JR.

LOCATION: San Francisco

CASING DIAMETER (inches): 2 ~~X~~ 3 4 4.5 6 Other

CASING VOLUME (gal.): 0.42

CALCULATED PURGE(gal.): 1.3

ACTUAL PURGE (gal.): 1.5

END PURGE: 1250

SAMPLING TIME: 1330

[illegible]

OTHER: COLOR (Cobalt, 0-100): ODOR: None

FIELD SAMPLES COLLECTED AT THIS WELL (i.e.FB-1, XDUP-1): _____

PURGING/SAMPLING EQUIPMENT: ☐ Bladder Pump ☐ Electric Submersible Pump ☒ Peristaltic pump (pump)

Sampled in dispo Boiler

WELL INTEGRITY: Good LOCK: 5:12 2249

REMARKS: Dissolved or collected downhole 2/11/00

DO = 0.70 mg/L Temp = 13.5°C

FIELD METER MODEL NUMBER(S): Murphy Company GP CALIBRATION DATE(S): 2/1/00

pH: 4.4 7 10 12.4 EC: 1000 O.R.P.: 100 Turbidity: 1
D.O.: 1.3 mg/L De 3/11/2012 Temp: 12.3°C DO: 9.87 mg/L

SIGNATURE: C. [Signature] REVIEWED BY: _____ PAGE _____ OF _____

Rev. 7/97

SAMPLE ID: 627-24

CLIENT NAME: ST Presidio Trust

LOCATION: San Francisco

CASING DIAMETER (inches): 2 3 4 ~~4.5~~ 4.5 6 Other

CASING ELEVATION (feet/MSL) : _____ CASING VOLUME (gal.) : 2.4

DEPTH OF WELL (feet): 6.9 CALCULATED PURGE(gal.): 7.2

DEPTH TO WATER (feet): 323 . ACTUAL PURGE (gal.): 7.5

DATE PURGED: 2/9/86

DATE SAMPLED: 2/9/00 SAMPLING TIME: 1400

[illegible]

OTHER: COLOR (Cobalt, 0-100): ODOR: None

FIELD SAMPLES COLLECTED AT THIS WELL (i.e.FB-1, XDUP-1):

PURGING/SAMPLING EQUIPMENT:	Bladder Pump	Electric Submersible Pump	Peristaltic pump
-----------------------------	--------------	---------------------------	------------------

disparate rates used to purge & sample well

WELL INTEGRITY: _____ LOCK: _____

REMARKS: Dissolved Oxygen collected downhole on 2/11/06

DO = 0.54 mg/L Temp = 13.9 °C

FIELD METER MODEL NUMBER(S): See 6.37-38 CALIBRATION DATE(S):

pH: 4 7 10 ~~5~~ EC: 1000 O.R.P.: Turbidity: /

D.O.:

SIGNATURE: S. C. _____ REVIEWED BY: _____ PAGE _____ OF _____

TRRev. 7/97

SAMPLE ID: LF0762011

CLIENT NAME: Presidio Trust

SAMPLED BY: S. G. Adams, VI

LOCATION: San Francisco

CASING DIAMETER (inches): 2 3 4 4.5 6 Other _____

CASING VOLUME (gal.): 1.9

CALCULATED PURGE(gal.): 5.7

ACTUAL PURGE (gal.): 7.0

END PURGE : 1425

SAMPLING TIME: 1427

[illegible]

OTHER: COLOR (Cobalt, 0-100): ODOR:

FIELD SAMPLES COLLECTED AT THIS WELL (i.e.FB-1, XDUP-1):

PURGING/SAMPLING EQUIPMENT:	Bladder Pump	Electric Submersible Pump	Peristaltic pump
-----------------------------	--------------	---------------------------	------------------

(dispo. Boiler) to purge & sample

WELL INTEGRITY: Good LOCK: Side 2244

REMARKS: Dissolved oxygen collected downstream 2/11/00

$DO = 0.72 \text{ mg/L}$ $Temp: 14.5^\circ C$

FIELD METER MODEL NUMBER(S): sec 677-38 CALIBRATION DATE(S): _____

pH: 4 7 10 EC: 1000 O.R.P.: _____ Turbidity: _____ /

D.O.:

SIGNATURE: SL REVIEWED BY: _____ PAGE _____ OF _____

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LEGEND

- ⊙ 637-35 A1 Groundwater Monitoring Well
7.58 March 2003 Groundwater Elevation
<50 (3/11/03) Most recent TPHg Concentration and Date of Collection
- ⊙ 610GW101 Adjacent Study Area A1 Zone Groundwater Monitoring Well
7.52
- ⊙ 610GW102 Adjacent Study Area A2 Zone Groundwater Monitoring Well
7.52
- ➔ Approximate Direction of Groundwater Flow
- Groundwater Contours (Contour Interval : 1.0 ft)
- - - Groundwater Contours (Contour Interval : 0.1 ft)
- Approximate 100 µg/L TPH Contour
- - - Topographic Contour (Contour Interval : 10 ft)
- Approximate Location of Former Aboveground Storage Tanks (ASTs)
- ⊙ Approximate Area of ORC Injection
- Approximate Area of Former Excavation
- 640 Building and Number

Notes:
Groundwater elevation data collected at Low Tide on 10 March 2003.

Building 637 A1 zone monitoring wells and monitoring wells 600GW105, 600GW106, 610GW101, 610GW102 and 610GW103 were used in groundwater contouring.

Horizontal Datum: NAD 27, CA State Plane Coordinates, Zone 3, feet
Vertical Datum: Presidio Lower Low Water (ft. PLLW)

**BUILDING 637 AREA
10 MARCH 2003 GROUNDWATER ELEVATION
AND TPHg CONCENTRATION MAP
A1 ZONE WELLS AT LOW TIDE**

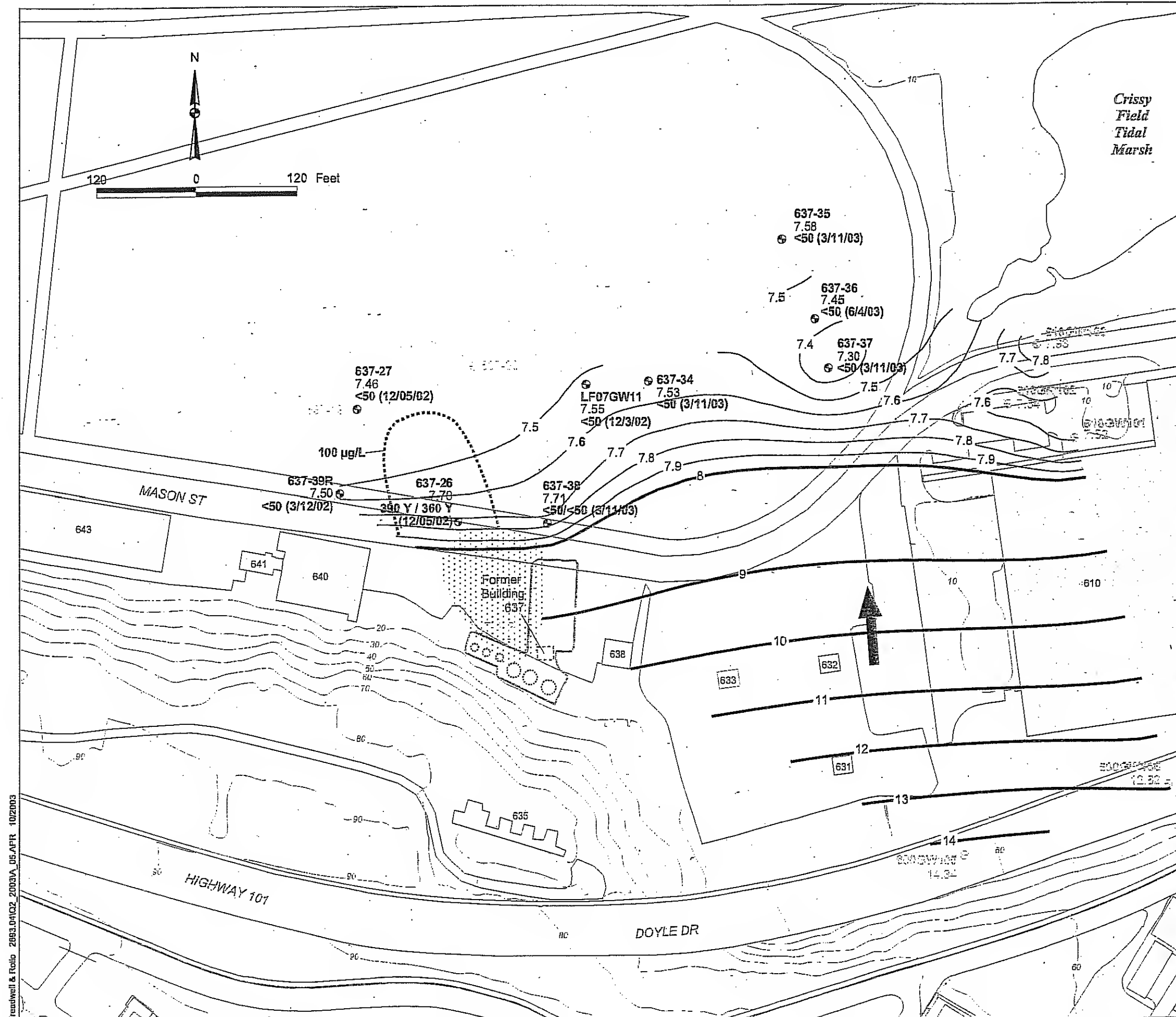
Treadwell&Rollo



Presidio Trust

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October 2003

FIGURE A-5-2



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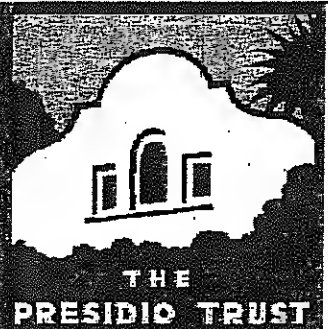
LEGEND

- 637-35 6.31 A1 Groundwater Monitoring Well June 2003 Groundwater Elevation
- 610GW101 6.36 Adjacent Study Area A1 Zone Groundwater Monitoring Well
- 610GW103 A2 Zone Groundwater Monitoring Well
- Approximate Direction of Groundwater Flow
- Groundwater Contours (Contour Interval : 1.0 ft) (Contour Interval : 0.1 ft)
- Topographic Contour (Contour Interval : 10 ft)
- Approximate Location of Former Aboveground Storage Tanks (ASTs)
- Approximate Area of ORC Injection
- Approximate Area of Former Excavation
- 640 Building and Number

Notes:
Groundwater elevation data collected at Low Tide on 2 June 2003.
Building 637 A1 zone monitoring wells and monitoring wells 600GW105, 600GW106, 610GW101, 610GW102 and 610GW103 were used in groundwater contouring.
Horizontal Datum: NAD 27, CA State Plane Coordinates, Zone 3, feet
Vertical Datum: Presidio Lower Low Water (ft. PLLW)

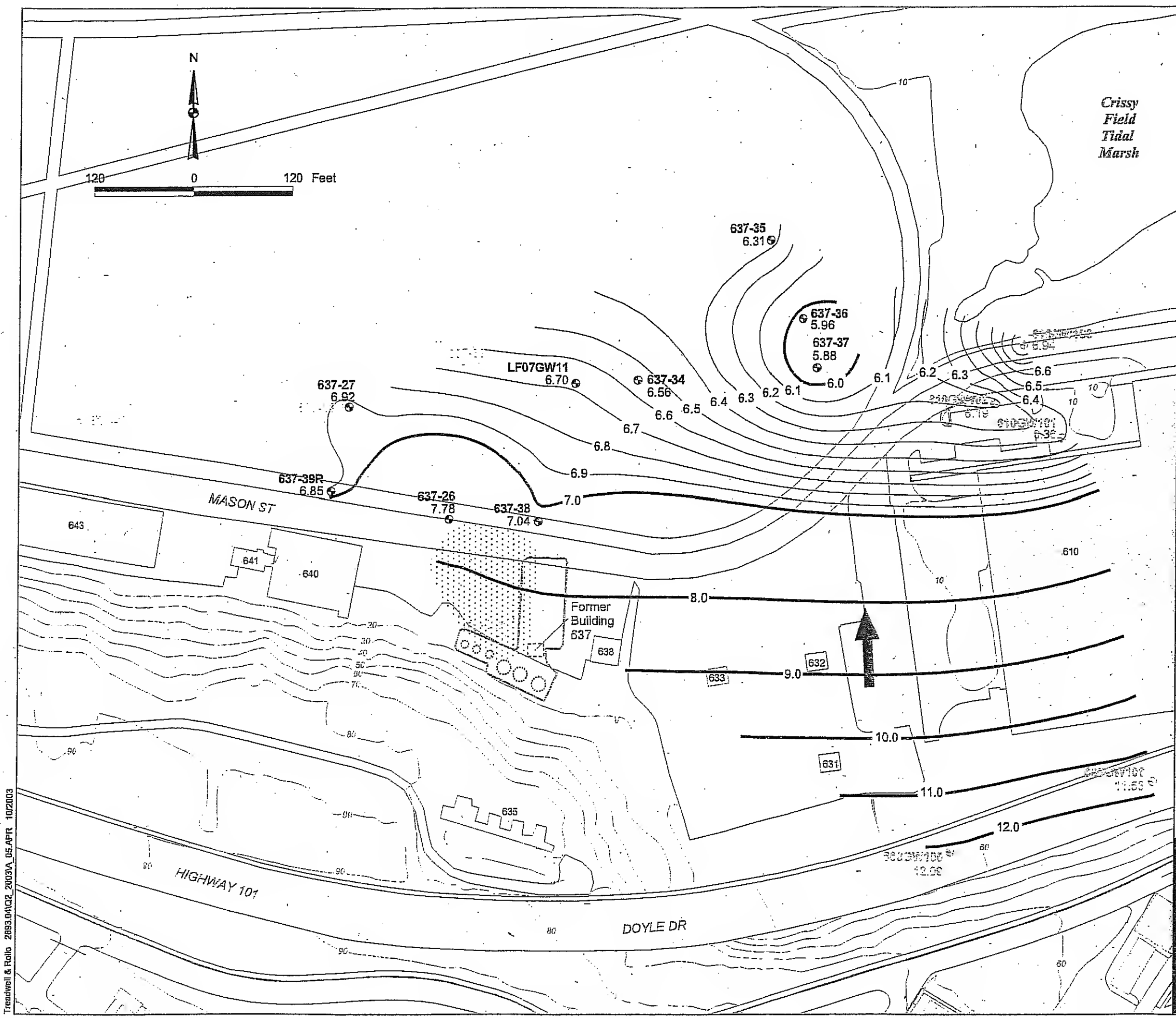
BUILDING 637 AREA
2 JUNE 2003
GROUNDWATER ELEVATION MAP
A1 ZONE WELLS AT LOW TIDE

Treadwell&Rollo

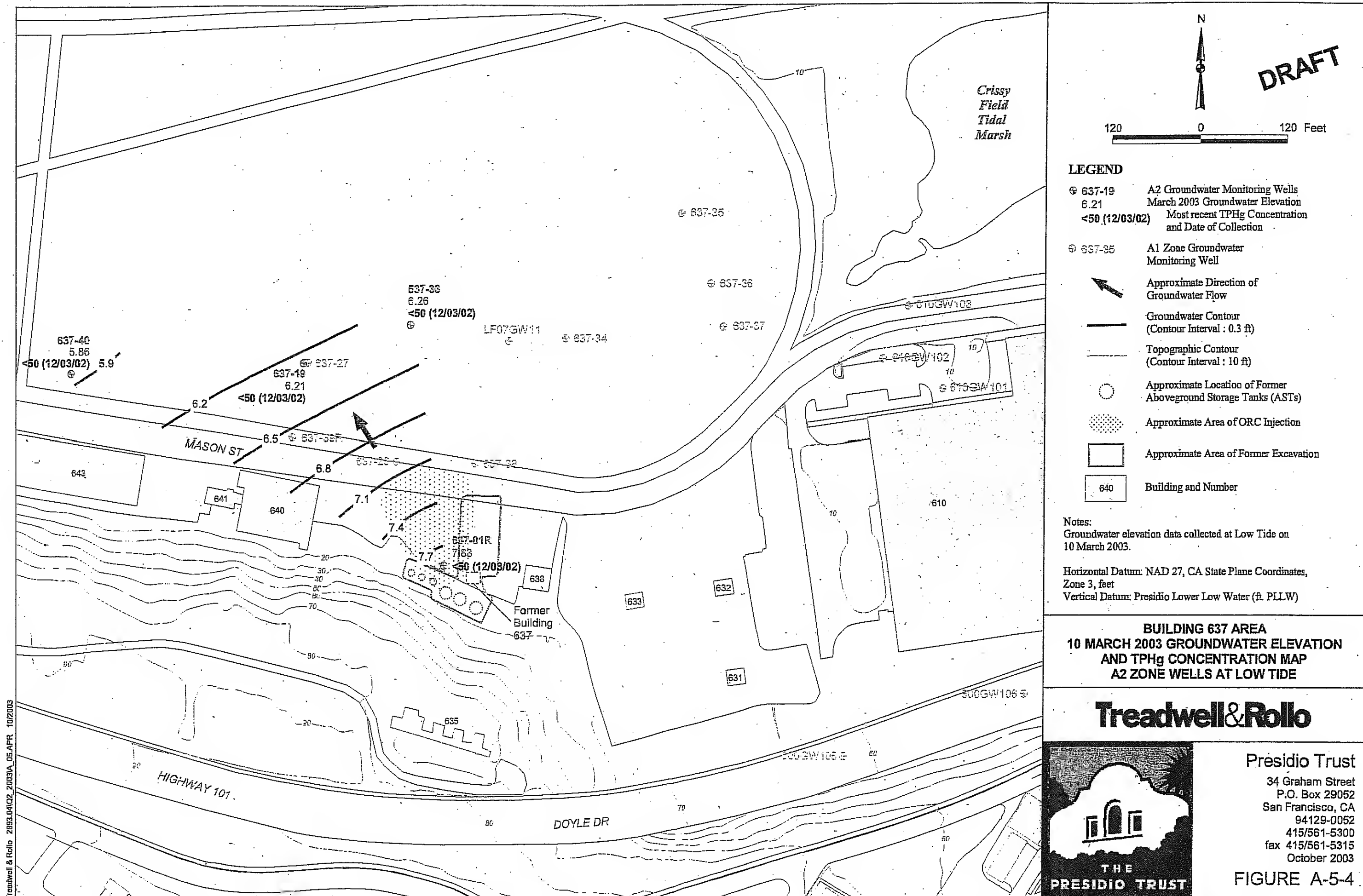


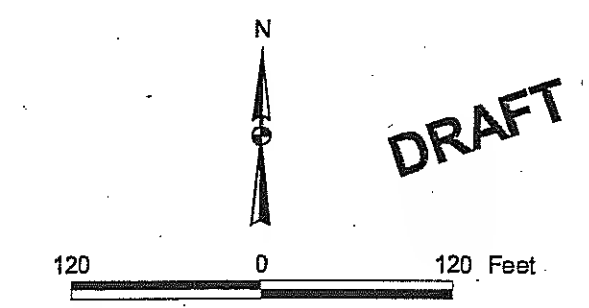
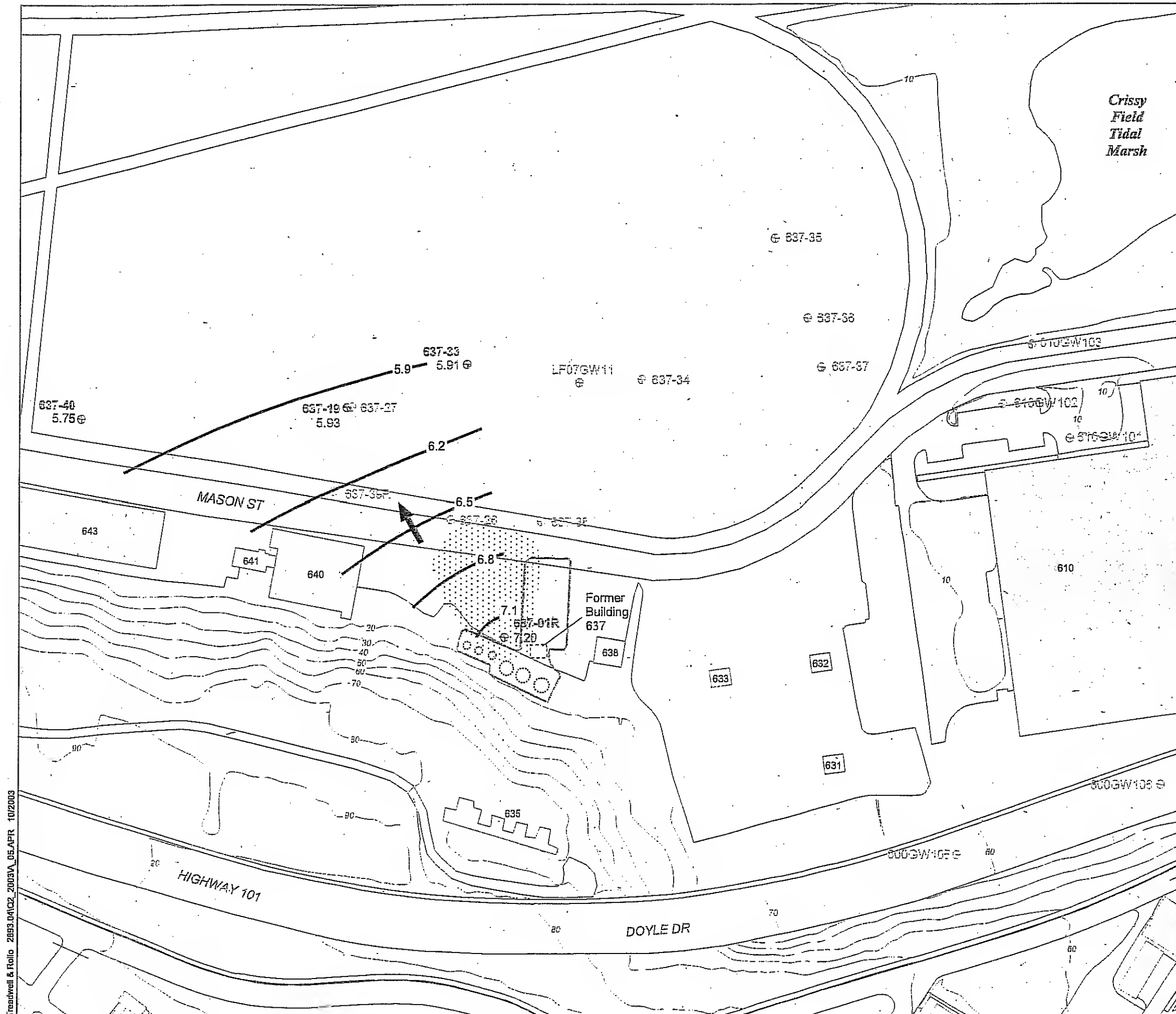
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FIGURE A-5-3



Treadwell & Rollo 2893.041Q2 2003A_05.APR 10/2003





LEGEND

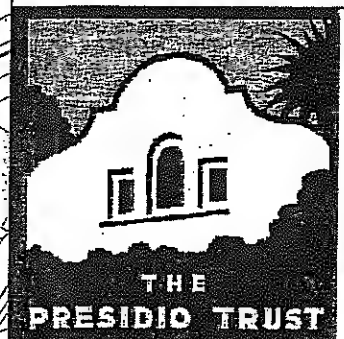
- ⊙ 637-19 A2 Groundwater Monitoring Wells
5.93 June 2003 Groundwater Elevation
- ⊙ 637-35 A1 Zone Groundwater Monitoring Well
- ↖ Approximate Direction of Groundwater Flow
- Groundwater Contour
(Contour Interval : 0.3 ft)
- Topographic Contour
(Contour Interval : 10 ft)
- Approximate Location of Former Aboveground Storage Tanks (ASTs)
- ⊘ Approximate Area of ORC Injection
- Approximate Area of Former Excavation
- 640 Building and Number

Notes:
Groundwater elevation data collected at Low Tide on 2 June 2003.

Horizontal Datum: NAD 27, CA State Plane Coordinates, Zone 3, feet
Vertical Datum: Presidio Lower Low Water (ft. PLLW)

**BUILDING 637 AREA
2 JUNE 2003
GROUNDWATER ELEVATION MAP
A2 ZONE WELLS AT LOW TIDE**

Treadwell & Rollo



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FIGURE A-5-5

